



NAVAL FACILITIES ENGINEERING SERVICE CENTER
Port Hueneme, California 93043-4370

Site Specific Report SSR-2232-ENV

SITE CHARACTERIZATION AND ANALYSIS PENETROMETER SYSTEM

**SITE CHARACTERIZATION
AT NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND**

**SITE 12 -- TANK FARM 4
SITE 13 -- TANK FARM 5**

by

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DRAFT REPORT

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EXECUTIVE SUMMARY

An investigation was conducted from 22 August 1995 to 10 September 1995 at Naval Education and Training Center (NETC), Newport, Rhode Island. Two underground storage tank (UST) farms were investigated, Site 12 - Tank Farm 4 and Site 13 - Tank Farm 5. Seventy SCAPS pushes were completed during the investigation. The objective of the SCAPS investigation was to screen for polycyclic aromatic hydrocarbon (PAH) contamination in the vicinity of underground fuel storage tanks at the tank farms. The investigation began by performing a push near an existing monitoring well at each UST. The plan was to then determine the extent of contamination if encountered. SCAPS laser induced fluorescence (LIF) results indicate PAH contamination near some of the USTs, however, these results were not confirmed by traditional soil sampling and analysis.

The near surface geology, as interpreted through the SCAPS investigation, consists primarily of silty sand to sandy silt, clayey silt to silty clay, and clay. Figures 5 and 7 provide visual representation of the lithology at Tank #48 and Tank #50, respectively.

SCAPS fluorescent intensity results indicate that the highest levels of PAH contamination is located in the vicinity of Tank #48 and Tank #50. The contamination is not associated with any particular soil type.

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This report documents the Site Characterization and Analysis Penetrometer System (SCAPS) investigation of Tank Farm 4 and Tank Farm 5 at Naval Education and Training Center (NETC) Newport, RI. The investigation consisted of pushing a penetrometer probe (known as a "push") into the subsurface at locations in and around the sites to determine the vertical and lateral extent of hydrocarbon contamination and soil lithology. SCAPS performed the investigation from 22 August 1995 to 10 September 1995. Seventy SCAPS pushes were completed.

1. INTRODUCTION

1.1 Objectives

The objective of the SCAPS investigation was to complete pushes to screen for polycyclic aromatic hydrocarbon (PAH) contamination in the vicinity of underground fuel storage tanks at the NETC Newport Tank Farm 4 (TF4) and Tank Farm 5 (TF5).

1.2 Site Location

NETC is located along the western shore of Aquidneck Island in Newport County, RI. The base is approximately 60 miles south of Boston and 25 miles southeast of Providence as shown in Figure 1. Long Island Sound and the Atlantic Ocean are six miles south of the base. TF4 and TF5 are located east of Defense Highway in the central region of the base (NEESA, 1983).

1.3 Site History

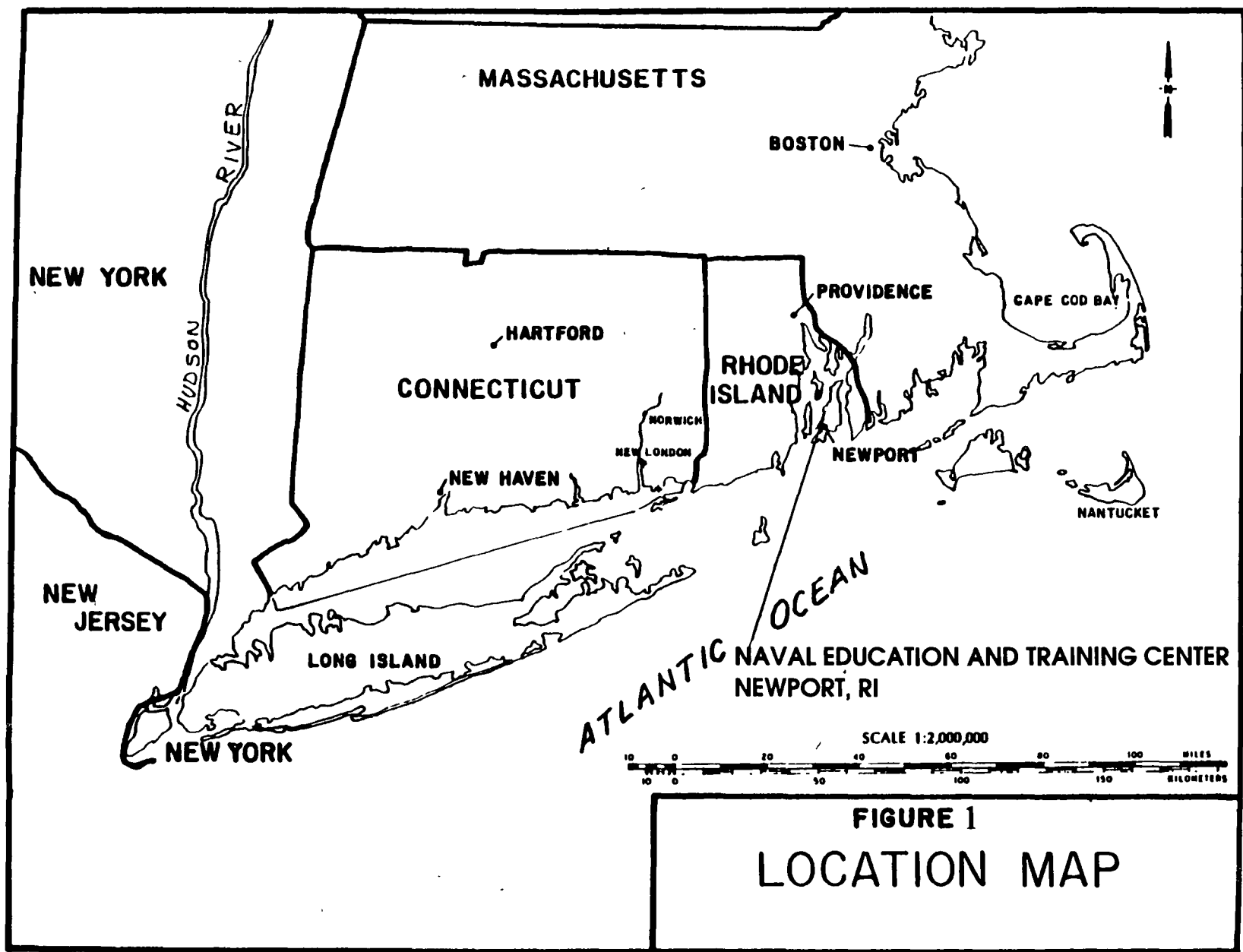
TF4 and TF5 are both underground fuel storage facilities. TF4 consists of twelve underground storage tanks (USTs) and TF5 consists of eleven UST's. Each UST has a capacity of 2.5 million gallons. The UST's were used for storage of Fuel Oil #5 and #6 during World War II until the mid-1970's. During cleaning of the tanks, the tank bottom sludge was disposed of directly on the ground surface in the vicinity of the tank. It is estimated that 100,000 to 190,000 gallons of oil sludge were disposed of at TF4 and 100,000 to 175,000 gallons at TF5 (NEESA, 1983).

1.4 Site Geology

The near surface geology, as interpreted through the SCAPS investigation, consists primarily of silty sand to sandy silty, silty clay to clayey silt, and clay. See Appendix F - Raw Data for interpreted soil classification results.

Generally, the subsurface geology consists of bedrock at 15 to 20 below ground surface (bgs). Overlaying the bedrock is fine sand to sandy silt, and sandy gravelly silt. The tanks extend down into the bedrock to approximately 40 feet bgs. Fill material was placed in the annulus that extends 20 feet laterally from the tanks down to a depth of 40 feet bgs.

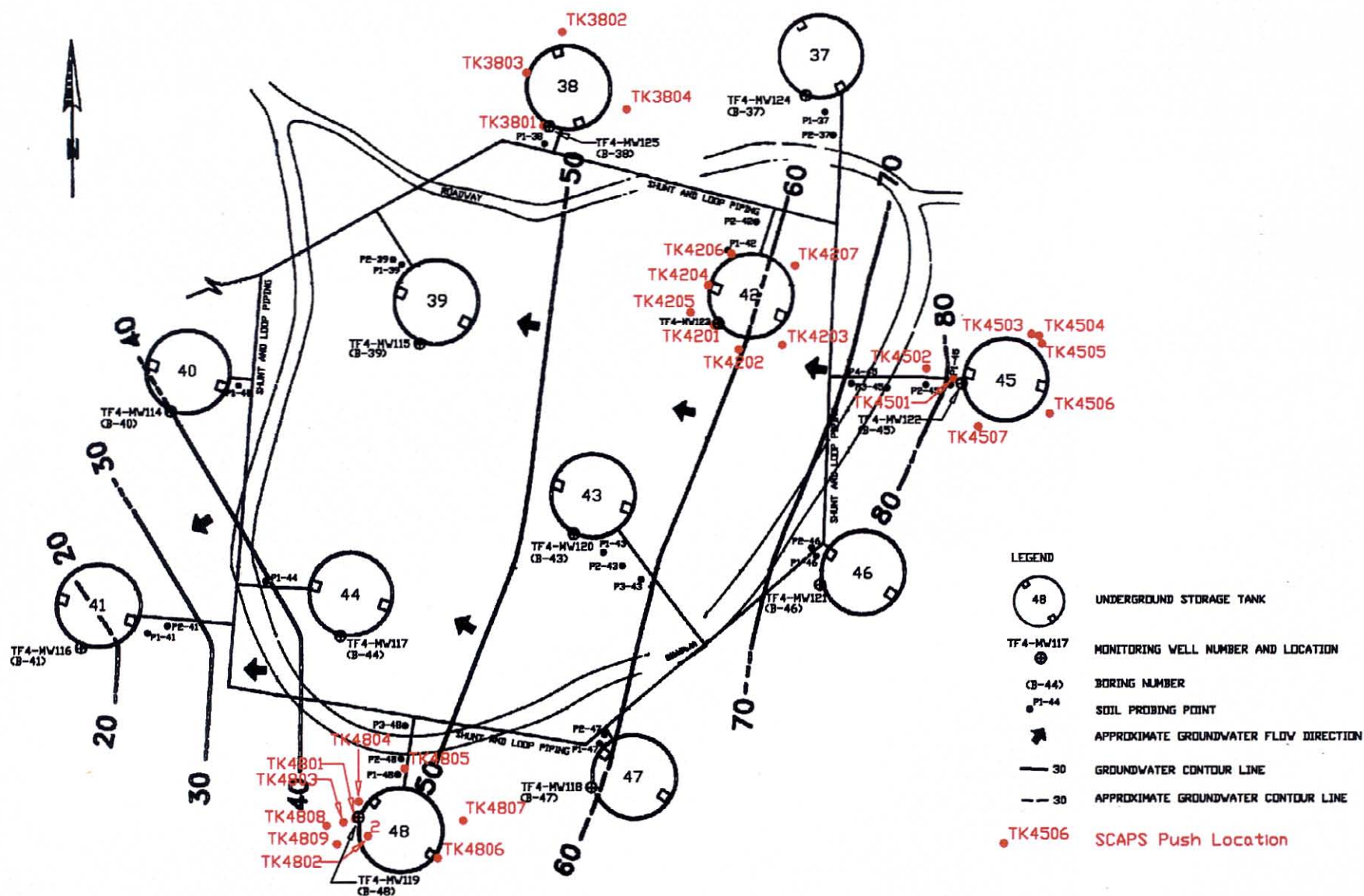
Groundwater in the area of TF4 and TF5 ranges from 11 to 15 feet bgs. Groundwater flow at TF4 is predominantly to the west while at TF5 groundwater flows to the north.



1.5 Investigation Procedure

The investigation of each UST began by performing a push in the same location as an existing monitoring well and soil boring near each UST. In general, the investigation proceeded around the perimeter of the UST and in some cases proceeded away from the UST. Figures 2 and 3 show the SCAPS push locations at TF4 and TF5, respectively.

Appendix A contains the Methods used during the investigation.











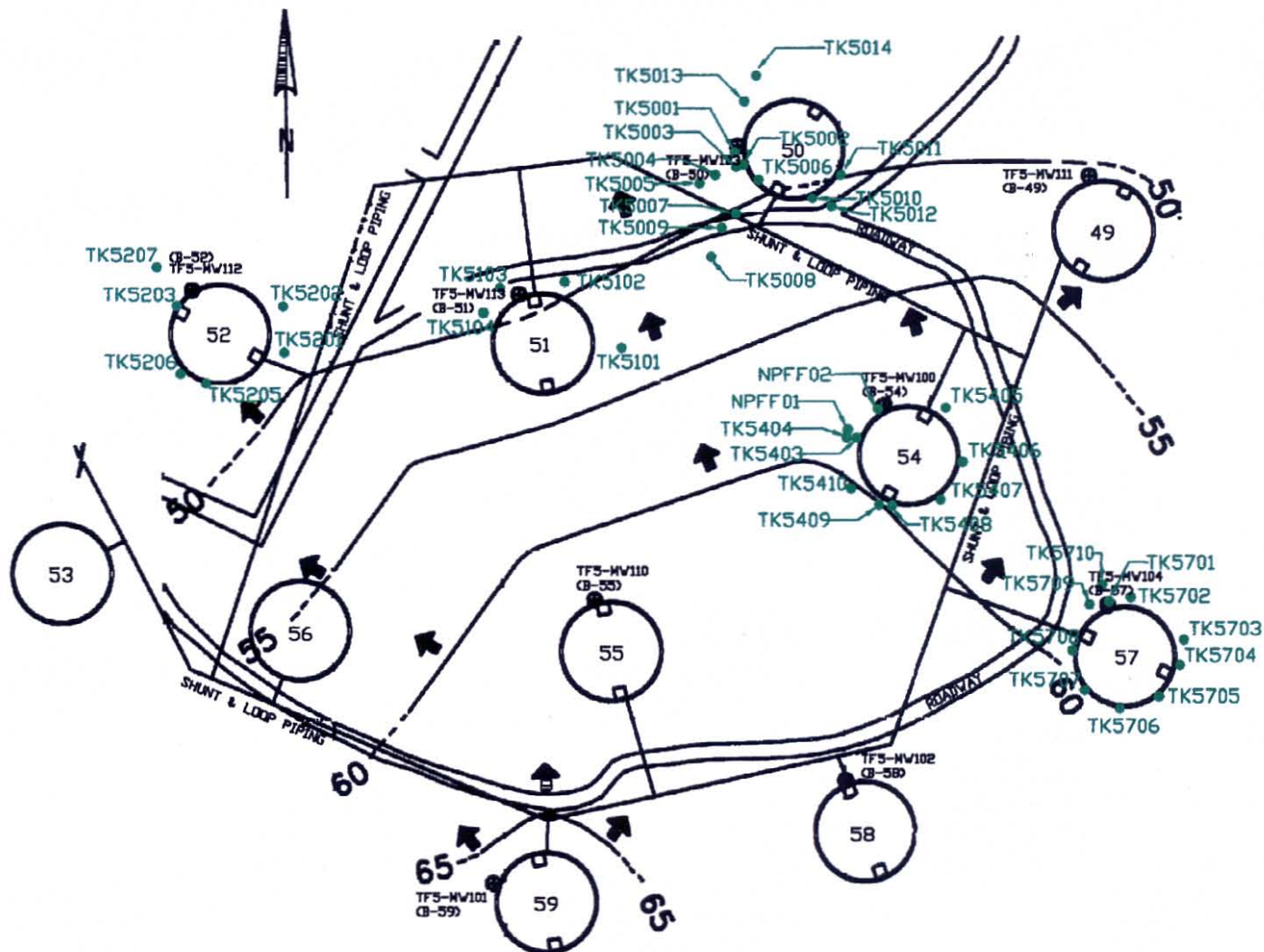
TANK FARM #4

FIGURE 2 - SCAPS PUSH LOCATIONS

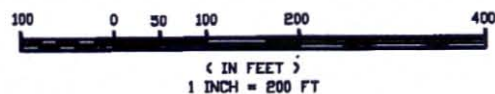
SCAPS INVESTIGATION
NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND

LEGEND

-  UNDERGROUND STORAGE TANK
-  MONITORING WELL NUMBER AND LOCATION
-  BORING NUMBER
-  SOIL PROBING POINT
-  APPROXIMATE GROUNDWATER FLOW DIRECTION
-  GROUNDWATER CONTOUR LINE
-  APPROXIMATE GROUNDWATER CONTOUR LINE
-  SCAPS Push Location



GRAPHIC SCALE



TANK FARM #5

FIGURE 3 - SCAPS PUSH LOCATIONS

SCAPS INVESTIGATION
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NEWPORT, RHODE ISLAND

2. INTERPRETATIONS

2.1 Interpreting Laser Induced Fluorescence Data.

SCAPS is a field screening technique that detects petroleum hydrocarbons using the technique of laser induced fluorescence (LIF). SCAPS measures the presence of petroleum hydrocarbons by detecting polynuclear aromatic hydrocarbons (PAHs). PAHs are virtually found in all petroleum fuel mixtures. The PAHs fluoresce under ultra violet excitation, so that the amount of fluorescence is related to the amount of PAHs. A detailed system description is included in Appendix B.

The sensitivity of SCAPS varies with the portion of PAHs in the petroleum fuel. The present SCAPS system is most sensitive to PAHs with three or more rings like those found in heavy fuels such as diesel fuel and heating oils. The system has a reduced sensitivity to lighter fuels such as avgas, JP-5, and JP-4 which contain a smaller portion of three or more ringed PAHs.

The Laser Induced Fluorescence (LIF) system is quantitative in a known soil matrix with a known contaminant. However, when operated in the field the LIF system is semi-quantitative due to typical variations in the local soil matrix contaminant type.

SCAPS results are intended to be used to gain a better understanding of contaminant distribution while reducing the number of investigation iterations at a site. Experience has shown that the measured fluorescence intensity is a good gross indicator of the location and amount of petroleum in the soil at a site, and that the SCAPS measurements are most effective when used in conjunction with a reduced number of soil samples that provide a quantitative measurement of the amount of contamination. The SCAPS results are not intended to define the extent of contamination for regulatory purposes.

Interpretation of the LIF response is completed by performing statistical analysis of the data collected to determine the Fluorescence Threshold (FT). The statistical analysis is included in Appendix C. A responding fluorescent intensity below the FT represents the normal population of responses that is expected from a complex soil system. A responding fluorescent intensity above the FT represents a different population of responses that can be shown to represent petroleum hydrocarbon contamination. This is shown during each investigation by collecting soil samples from ten percent of the push locations and sending the samples to contracted laboratories for total petroleum hydrocarbon analysis.

2.2 Interpolation of Laser Induced Fluorescence Data

The Groundwater Modeling System version 2.0 is used to interpolate the LIF responses to give a visual summary of SCAPS results. Interpolations are performed by bounding all data by a grid. The distance between each grid node is selected to represent the average distance between push

locations. The interpolation is made by using the Inverse Distance Weighted method which uses Gradient Hyperplane Nodal Functions to determine a scalar value at the nearest grid node. Appendix C contains all assumptions used to generate the interpolation.

2.3 LIF System Output

A push profile is generated after the LIF system collects the data. All the profiles are included in Appendix D. A profile consists of six columns of information. The first three columns are cone penetrometer data that is discussed in section 2.3. The last two columns of information are LIF system results. The first of the last two columns represents the Peak Wavelength in nanometers of the responding signal. This is used real time to indicate:

- consistency with previous results
- consistency of the response with depth
- consistency with known contaminant responses from previous investigations

The second of the last two columns represents the peak Raw Fluorescent intensity of the responding signal. This is used real time to indicate:

- the magnitude of the responding signal with respect to the calibration samples
- the depth and thickness of the positive response

Responses at or near the ground surface are considered false positives since they could represent plant materials.

2.4 Cone Penetrometer Data.

As mentioned in the previous section, the push profile consists of six columns of information. The first three columns are cone penetrometer data results. The first of the three columns represents the cone pressure in tons per square foot (tsf). The cone pressure measurement, q_c , is recorded with a Wheatstone bridge strain gauge in terms of the voltage and converted to bearing pressure expressed as tsf. Results may be used in geotechnical design or along with sleeve friction to determine soil classification. The cone resistance is a measure of the grain-to-grain skeleton strength for sands and silts. Further advancement of the probe is stopped if this measurement exceeds 1000 tsf at any time during the push.

The second of the first three columns represents the sleeve friction in tons per square foot (tsf). The sleeve friction resistance, f_g , is the resistance of the soil as it slides past the friction sleeve. Further advancement of the probe is stopped if this measurement exceeds 8 tsf at any time during the push.

The third column represents the soil classification as a number between 1 and 12. This is determined from the ratio of cone pressure and sleeve friction. Appendix D contains the chart that is used to convert the number to a soil classification type.

Techniques for using the soil strength measurements (cone pressure and sleeve friction) made with the cone penetrometer to determine soil type have been well-documented (Olsen and Farr, 1986). The classification scheme used by the SCAPS was devised by Robertson and Campanella (1989) to identify the types of soils encountered by cone penetrometer probes. For a detailed description of the output interpretation see Roberston and Campanella (1989), "Guidelines for Geotechnical Design Using the Cone Penetrometer Test and CPT with Pore Pressure Measurement." Hogentogler & Co., Inc., Columbia, MD.

SCAPS standard electrical cone penetrometer instrumentation consists of strain gauges measuring cone pressure and sleeve friction in accordance with American Society of Testing and Materials (ASTM) Standard D3441. The probe does not fully conform to ASTM standard because the diameter changes less than one foot above the friction sleeve.

3. RESULTS

Figures 2 and 3 show the push locations completed at Tank Farms #4 and #5, respectively. Figures 4 and 6 show the push locations at Tanks #48 and #50, respectively. Figures 5 and 7 provide visual representation of the soil lithology and the interpolation of fluorescent intensity results through the cross sections indicated in Figures 4 and 6. The areas of highest fluorescent intensity are indicated by red and yellow contours. The raw SCAPS results are located in Appendix F.

Figure 5 is a cross section of the pushes in the vicinity of Tank #48 (located at Tank Farm #4) looking west along line A-A as shown in Figure 4. The majority of PAH contamination is associated with push TK4801 between the depths of 20 feet and 35 feet below ground surface (bgs) and with push TK4804 between the depths of 11 feet and 30 feet bgs. Both pushes are located along the perimeter of Tank #48. When the contour data and lithologic data are viewed together in Figure 5, no association can be made between soil type and PAH contamination due to the interbedded nature of the lithology at the site.

Figure 7 is a cross section of Tank #50 (located at Tank Farm #5) looking west along line B-B as shown in Figure 6. The majority of PAH contamination is associated with push TK5001 between the depths of 6 feet and 8 feet bgs and with push TK5007 between the depths of 15 and 17 feet bgs. When the contour data and lithologic data are viewed together in Figure 7, no association can be made between soil type and PAH contamination due to the interbedded nature of the lithology at the site.

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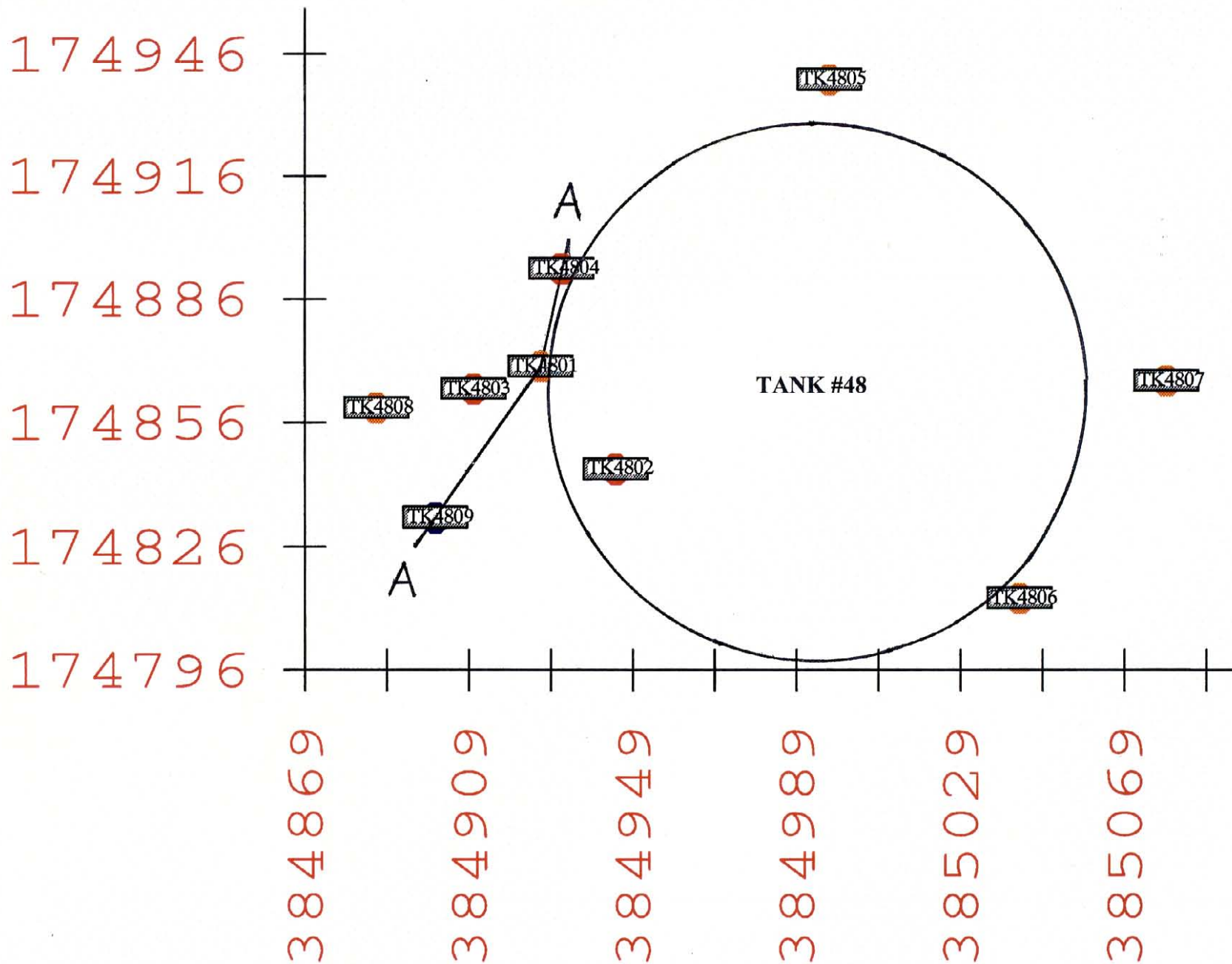
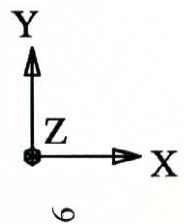


Figure 4 - SCAPS Push Locations at Tank #48
Cross Section A-A

Normalized_interp

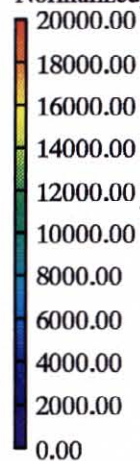
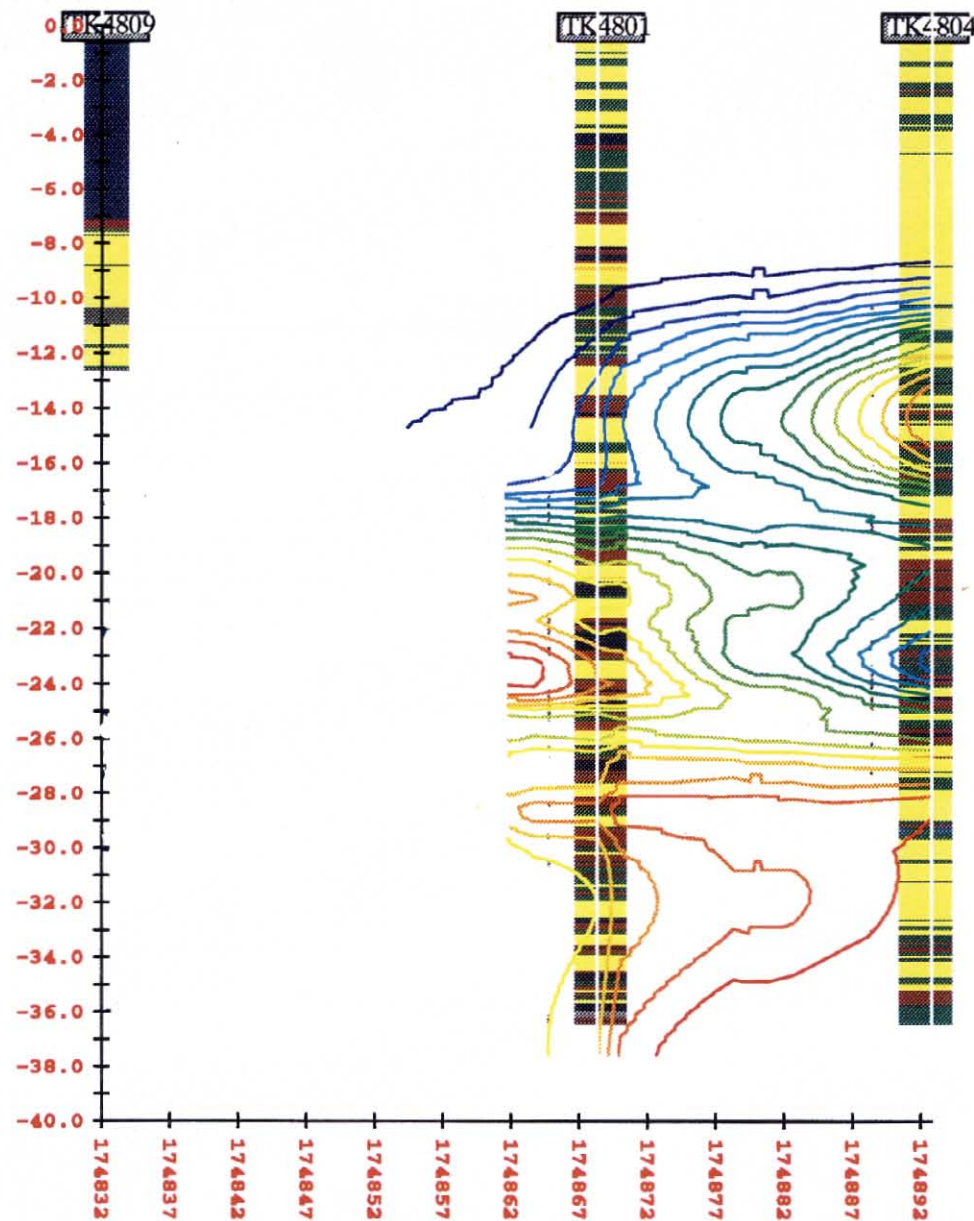


Figure 5 - SCAPS RESULTS

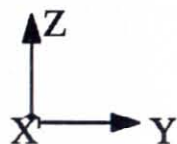
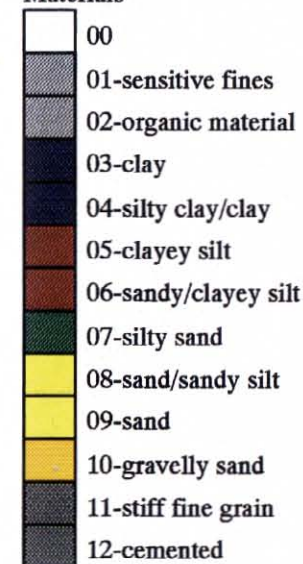
Cross Section A-A (Figure 4) viewed to the west.

Contour data is interpolation of fluorescent intensity results.

Vertical bars indicate soil types as interpreted from CPT data.



Materials



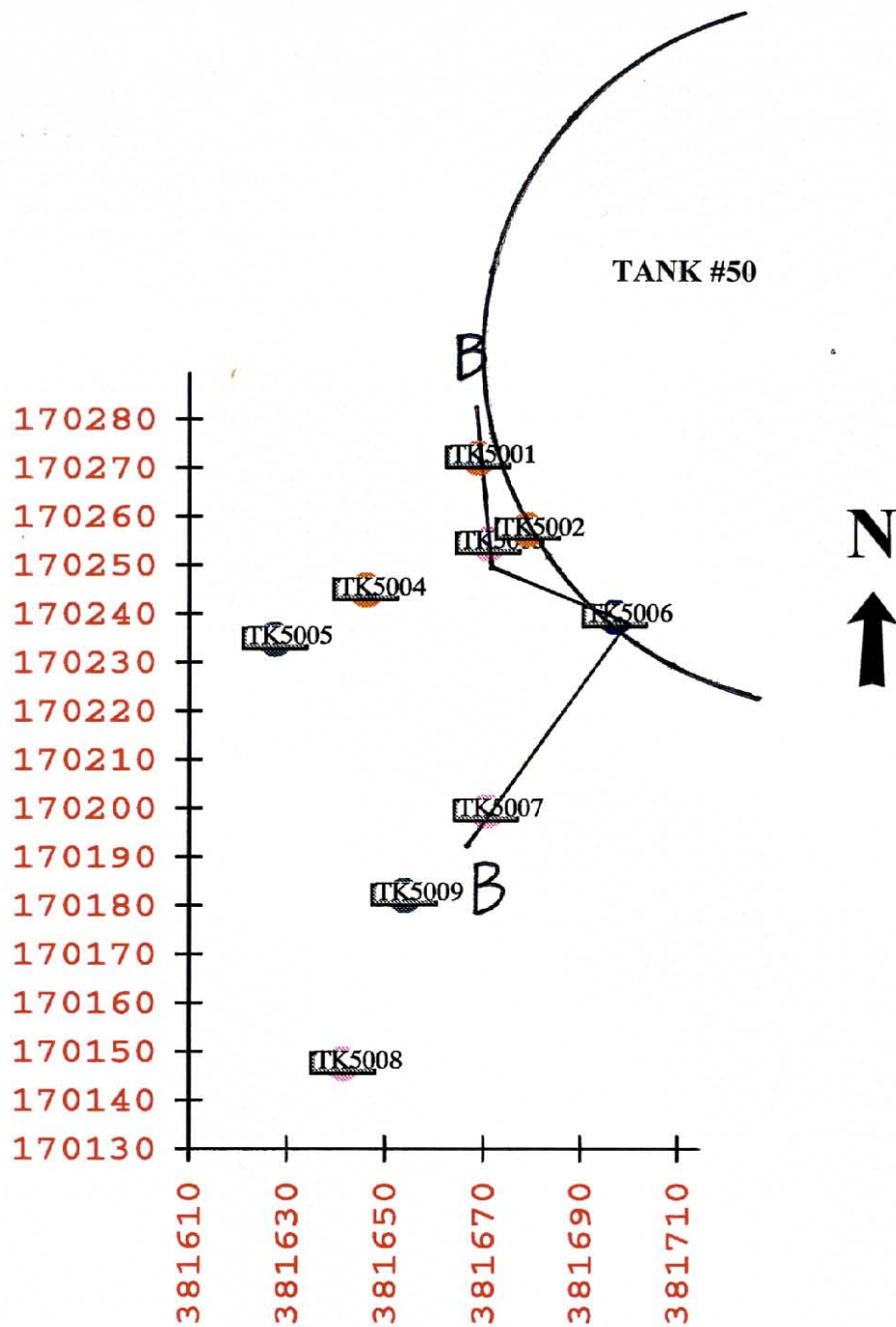
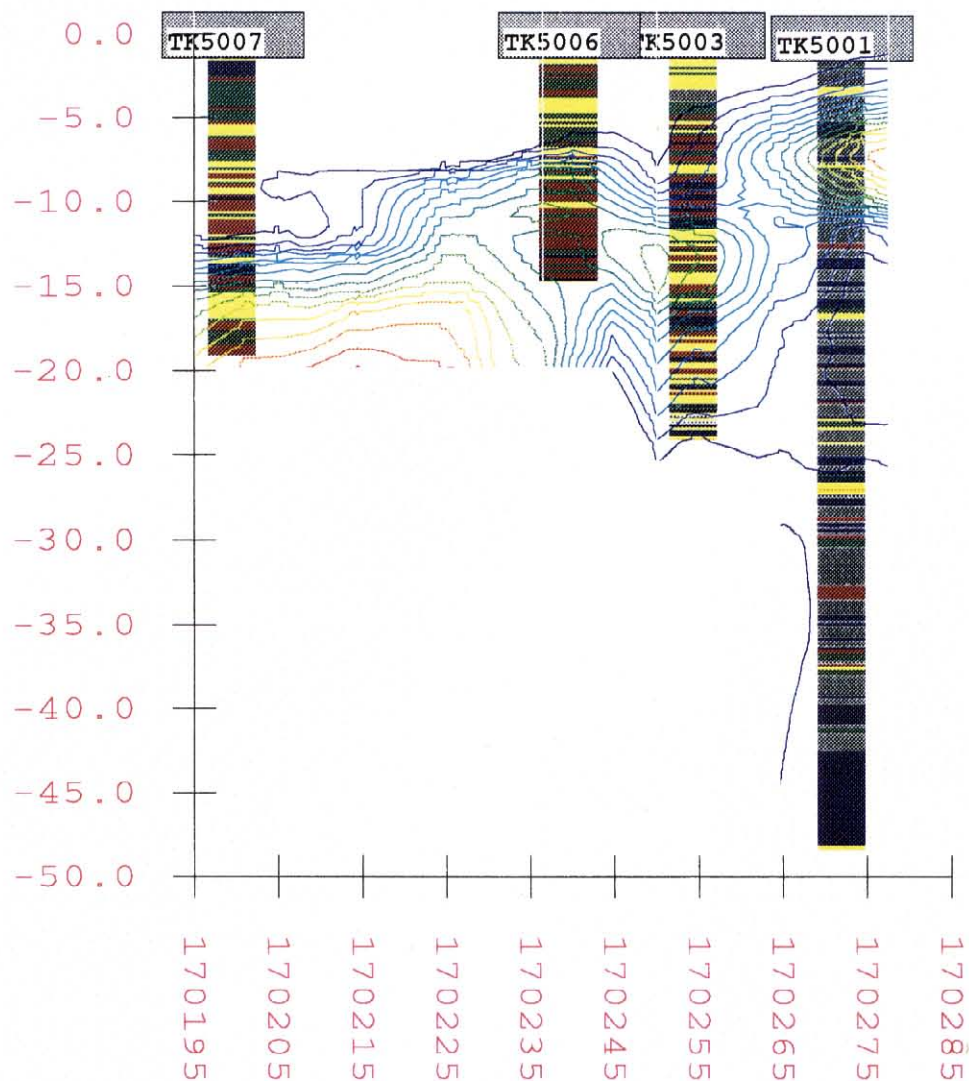
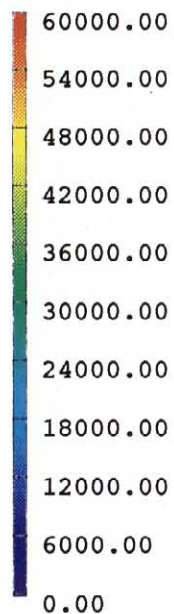


Figure 6 - SCAPS Push Locations at Tank #50
Cross Section B-B

normalized_interp



Materials

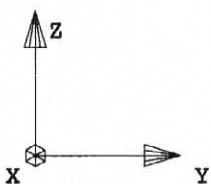


Figure 7 - SCAPS RESULTS

Cross Section B-B (Figure 6) viewed to the west.

Contour data is interpolation of fluorescent intensity results.

Vertical bars indicate soil types as interpreted from CPT data.



REFERENCES

Olsen and Farr, 1986: "Site Characterization Using the Cone Penetrometer Test." Proceedings of the ASCE Conference on the Use of In-Situ Testing in Geotechnical Engineering. American Society of Civil Engineers, New York, N.Y.

NEESA 13-024, 1983: "Initial Assessment Study of Naval Education and Training Center, Newport, RI". Naval Energy and Environmental Support Activity.

APPENDIX A - METHODS

APPENDIX A - METHODS

Chain-of Custody

A 1 PERMITS.	2
A.2 PUSH HOLE CLEARANCE.	2
A.3 SURVEYING.	2
A.4 GROUTING.	2
A.5 DECONTAMINATION.	2
A.6 INVESTIGATIVE DERIVED WASTE.	3
A.7 COLLECTION AND ANALYSIS OF SAMPLES.	3

APPENDIX A - METHODS

A.1 Permits.

No permits were required to complete or abandon pushholes.

A.2 Push Hole Clearance.

Ground Penetrating Radar (GSSI Sir System 2) and a magnetic induction pipeline locator were used to check each push location for the presence of buried objects or utilities. The hole clearance records are included at the end of this Appendix.

A.3 Surveying.

Push locations were determined by triangulation of bearings from monitoring wells and other permanent structures. The surveying records are included at the end of this Appendix.

A.4 Grouting.

A grout tube is attached to the tip of the SCAPS probe. Following the data collection activities for each push, the attached grout pump is used to force grout to fill the hole as the probe is withdrawn. The grouting process consists of initially pumping approximately one gallon of water down the grout tube to force a sacrificial tip off the end of the SCAPS probe. Once the tip is removed a grout mixture of 15 lbs of Portland Cement, 1 lb Bentonite and 4 gallons of water per 10 feet of push hole is pumped at a rate equal to the SCAPS probe withdrawal rate. A constant pressure is maintained on the grout tube as the probe is withdrawn. Grout flow is monitored to identify any blockage of the tubing.

A.5 Decontamination.

All sampling and data collection devices coming in contact with potentially contaminated materials were decontaminated in accordance with ASTM 5088, Practice for Decontamination of Field Equipment Used at Non-radioactive Waste Sites.

Upon completion of push operations, the push rod and probe are cleaned as they are withdrawn using pressurized hot water. The hot water (140 degree Fahrenheit) is flushed through a cleaning collar at 150 psi (connected to a hot water storage system which contains all wash fluids) located beneath the truck.

APPENDIX A - METHODS

A.6 Investigative Derived Waste.

All decontamination water was collected into 55-gallon drums for analysis and proper disposal. Two 55-gallon drums of Investigative derived waste (IDW) water were generated during the investigation. The drums were left on a pallet within a IDW containment area on the site. Northern Division, Naval Facilities Engineering Command has the responsibility for the analysis and disposal of the two IDW drums.

IDW was generated during operation of the CPT system. Types of waste produced include: 1) wash water from rod decontamination operations, 2) solidified grout, and 3) wash water from grouting equipment cleanup. IDW was placed in 55-gallon drums, labeled, and stored on pallets at the site.

The decontamination wastewater is expected to contain traces of petroleum hydrocarbons and suspended solids. Although the wash water is not expected to meet hazardous classification as defined in RCRA, the material was containerized, labeled, and stored at the SCAPS staging area.

The solidified grout consists of hydrated cement with a small amount of non-hazardous admixture (bentonite and Sikament). Grouting cleanup wash water consists of potable water with small amounts of cement particles and cement sludge. The wash water was disposed of on-site in accordance with the California Stormwater Best Management Practice Handbook.

A.7 Collection and Analysis of Samples.

No confirmatory soil samples were collected at NETC Newport.

APPENDIX A - METHODS

Push Hole Clearance Records

SCAPS GPR SURVEY

SITE GPR SURVEY INFORMATION:

[illegible]

SCAPS GPR SURVEY

SITE GPR SURVEY INFORMATION:

SCAPS file Hole #	GPR File #'s	GPR Pull (N-S/E-W)	Remarks
NFF #1	100	W-E	DID NOT LOCATE TANK EDGE
#1	101	E-W	NOT LOCATING TANK
N/A	102		FAIL TO LOCATE KNOWN EDGE OF TANK. PULL WAS UNSUCCESSFUL. DIELECTRIC CONSTANT OR GROUND ADJ. MAY CORRECT. ATTEMPTS TO ADJUST HAVE BEEN UNSUCCESSFUL
N/A 103	103	W-E	LOCATING TANK. EDGE TANK #54
	104	W-E	LOCATED POSSIBLE TANK BETWEEN 3 + 4 TH MARK
	105	W-E	LOCATED POSSIBLE TANK, JUST P2, BV TO 4 TH MARK
	106	W-E	LOCATED POSS TANK BETWEEN 2 & 3 MARK
	107		LOCATING EDGE TANK
	108	N-S	LOCATING EDGE OF TANK (ACROSS FROM 106)
	109		LOCATED APP. EDGE & CENTER TANK
115	118	N-S	ROUGH, COBBLE SIGNATURE, NO UTILITY'S
" 115-02	119	S-N	" " " NO APPARENT UTILITY.
" 02	120	E-W	CLEARED
" 03	122	W-E	CLEAR
	123	N-S	DID NOT OBSERVE OBSTRUCTIONS
	124	N-S	DID NOT LOCATE TANK EDGE

* HOLES WERE CLEARED VIA. LOCATING CENTER TANK,
LOCATION OF EXISTING MONITORING WELLS, AND
DATA FROM BORING LOGS. GPR ON HOLES
WAS NOT EFFECTIVE IN THIS TYPE FILL MATERIAL.

SCAPS GPR SURVEY

SITE GPR SURVEY INFORMATION:

[illegible]

APPENDIX A - METHODS

Surveying Records

SCAPS
FIELD SURVEY FORM

DATE: 27 AUG 95
PROJECT#: NETA NEWPORT RI., FUEL FARM 4 & 5

BENCHMARKS:

	Description of Benchmarks	I. D on Benchmarks
(BM #1)	MONITORING WELL	TFS MAY 103
(BM #2)	NORTH CORNER, DOG HOUSE	BLDG # 50
(BM #3)		
(BM #4)		
(BM #5)		

*Description of Benchmarks - Monitoring Wells, Survey stakes, Telephone Poles etc

*Identifiacion of benchmarks - Markings, symbols, etc..

Special Notes regarding Benchmarks & Survey:

* PUSH LOCATIONS 8 & 9 ARE ON DIRT ROADWAY
UNABLE TO RELOCATE EXACT LOCATIONS HAD TO
APPROXIMATE FOR SURVEY.

SURVEY:

Benchmark Orientation

Benchmark # Bm1 bearing to B72 in relative degrees 0°
(BM #1, BM #2, etc) (BM #, Building, Tower, Mag. North, etc) (Mag North - N/A)

Survey From B71 to Project Push Location #'s:

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
BEARING	70.0	29.0	50.0	84.0	92.0	15.0	48.0	60.0	58.0	351.5
(Relative, actual for Mag.)										
DISTANCE	6.0	23.0	25.0	43.0	63.0	47.0	80.0	135.0	99.0	95.0
(Feet)										

	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
BEARING	334	350	236.0	242.0						
(Relative, actual for Mag.)										
DISTANCE	117.0	132.0	54.0	87.0						
(Feet)										

	#21	#22	#23	#24	#25	#26	#27	#28	#29	#30
BEARING										
(Relative, actual for Mag)										
DISTANCE										
(Feet)										

SCAPS
FIELD SURVEY FORM

DATE: 27 AUG 95
PROJECT#: NETL NEWPORT RI. FUEL FARMS 4A5

BENCHMARKS:

	Description of Benchmarks	I. D. on Benchmarks
(BM #1)	MONITORING WELL	TF5 MW 113
(BM #2)	DOG HOUSE (NW CORNER)	BLDG #51
(BM #3)	NE	
(BM #4)		
(BM #5)		

*Description of Benchmarks - Monitoring Wells, Survey stakes, Telephone Poles etc.

*Identification of benchmarks - Markings, symbols, etc..

Special Notes regarding Benchmarks & Survey:

* PUSH LOCATIONS #TK51-01 & TK52-02 ARE APPROX DIST.
LINE OF SITE WAS UNACCESSABLE

SURVEY:

Benchmark Orientation

Benchmark # B71 bearing to B72 in relative degrees 0°
(BM #1, BM #2, etc) (BM #, Building, Tower, Mag North, etc) (Mag North - N/A)

Survey From B71 to Project Push Location #'s:

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
BEARING	22.5	339.5	195.0	148.0						

(Relative, actual for Mag.)

DISTANCE	136.	*560	24.0	47.0						
----------	------	------	------	------	--	--	--	--	--	--

(Feet)

	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
BEARING										

(Relative, actual for Mag.)

DISTANCE										
----------	--	--	--	--	--	--	--	--	--	--

(Feet)

	#21	#22	#23	#24	#25	#26	#27	#28	#29	#30
BEARING										

(Relative, actual for Mag.)

DISTANCE										
----------	--	--	--	--	--	--	--	--	--	--

(Feet)

SCAPS
FIELD SURVEY FORM

DATE: 27 AUG 45
PROJECT#: NETA NEWPORT RI, FUEL FARTS 485

BENCHMARKS

	Description of Benchmarks	I D. on Benchmarks
(BM #1)	MONITORING WELL	TFTW 112
(BM #2)	LOG HOUSE (NORTH CORNER)	#52
(BM #3)		
(BM #4)		
(BM#5)		

*Description of Benchmarks - Monitoring Wells, Survey stakes, Telephone Poles etc .

*Identifiacion of benchmarks - Markings, symbols, etc .

Special Notes regarding Benchmarks & Survey:

* MOVE #4 - WAS NOT PUSHED, OBSERVED FRONT ROD DURING PUSH
* MOVE #7 DISTANCE WAS APPROX. HAD TO ABANDON PUSH
TREES AND HILLSIDE WOULD NOT ALLOW ACCESS VIA WHEEL

SURVEY:

Benchmark Orientation

Benchmark # B-11 bearing to B-12 in relative degrees 0°
(BM #1, BM #2, etc) (BM #, Building, Tower, Mag North, etc) (Mag North - N/A)

Survey From B-1: to Project Push Location #'s:

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
BEARING	351	327	82	N/A	38.5	055	170			

(Relative, actual for Mag)

[illegible][illegible]

(Relative, actual for Mag)

[illegible][illegible]

(Relative, actual for Mag.)

DISTANCE _____
(Feet)

SCAPS
FIELD SURVEY FORM

DATE: 26 AUG 95
PROJECT#: NETC NEWFORT RI, FOEL FARMS 1 & 5

BENCHMARKS:

	Description of Benchmarks	I. D. on Benchmarks
(BM #1)	MONITORING WELL	TFS MW 104
(BM #2)	NORTH EAST ^{VE3} CORNER DOGHOUSE	BLDG "# 57"
(BM #3)	TANK ACCESS TR # 57	
(BM #4)		
(BM #5)		

*Description of Benchmarks - Monitoring Wells, Survey stakes, Telephone Poles etc..

- *Identification of benchmarks - Markings, symbols, etc

Special Notes regarding Benchmarks & Survey:

* SURVEY WAS PERFORMED ON TANK 57
* HOLE #3 WAS LOCATED IN APPROX LOCATION, COULD NOT
FIND EXACT DUE TO GRASS

SURVEY:

Benchmark Orientation

Benchmark # B71 bearing to B72 in relative degrees 0°
(BM #1, BM #2, etc) (BM #, Building, Tower, Mag. North, etc) (Mag North - N/A)

Survey From 37 #1 to Project Push Location #'s:

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
BEARING	162	207	250	266	287	309	331	351	51.5	122
(Relative, actual for Mag.)										
DISTANCE	5.0	29.0	99.0	111.0	123.0	145.0	99.0	59.0	21.0	25.0
(Feet)										

	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
BEARING										
(Relative, actual for Mag.)										
DISTANCE										
(Feet)										

	#21	#22	#23	#24	#25	#26	#27	#28	#29	#30
BEARING										
(Relative, actual for Mag)										
DISTANCE										
(Feet)										

DATE: 25 AUG 95
PROJECT#: NETC REPORT RI. FUEL FARMS AES

	Description of Benchmarks	I. D on Benchmarks
(BM #1)	MIV TANK # 54	TFS MIV 100
(BM #2)	FIRE HYDRANT (YELLOW, IN ROAD)	BTHW TK 54 & TK 49
(BM #3)		
(BM #4)		
(BM #5)		

*Identification of benchmarks - Markings, symbols, etc.

* FIRE HYDRANT IS UNDERWAY, DISTANCE BTWN POINTS WAS DETERMINED VIA WHEEL MEASUREMENT.
* SURVEY WAS PERFORMED TANK 54 (FUEL FARM 45)

Benchmark Orientation

Bm1

bearing to

B72

in relative degrees

 ϕ^c

~~NYA~~

(Mag. North - N/A)

Survey From

571

to Project Push Location #'s:

Two HOLE*	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
BEARING	237	247	231	232	110	139.5	165	188	193	211

(Relative, actual for Mag.)

DISTANCE

(Feet)

#11 #12 #13 #14 #15 #16 #17 #18 #19 #20

BEARING

(Relative, actual for Mag.)

DISTANCE

(Feet)

#21 #22 #23 #24 #25 #26 #27 #28 #29 #30

BEARING

(Relative, actual for Mag.)

DISTANCE

(Feet)

SCAPS
FIELD SURVEY FORM

DATE: 10 SEP 95
PROJECT#: NEWPORT FUEL FARM 4 & 5

BENCHMARKS.

	Description of Benchmarks	I. D. on Benchmarks
(BM #1)	TI ONOTERAG W 51	TF 4 NW 125
(BM #2)	DOG HOUSE (SW CORNER)	TK 38
(BM #3)		
(BM #4)		
(BM #5)		

*Description of Benchmarks - Monitoring Wells, Survey stakes, Telephone Poles etc..

*Identification of benchmarks - Markings, symbols, etc..

Special Notes regarding Benchmarks & Survey:

* MARK #4, WAS NOT ABLE TO GET STRAIGHT PUSH WITH
WHEEL DUE TO SHRUBS AND DOGHOUSE.
- MEASURED DIST. WITH WHEEL

SURVEY:

Benchmark Orientation

Benchmark # BM1 bearing to BM2 in relative degrees Ø
(BM #1, BM #2, etc) (BM #, Building, Tower, Mag North, etc) (Mag. North - N/A)

Survey From BM1 to Project Push Location #'s:

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
BEARING	182	276	245	345						

(Relative, actual for Mag.)

DISTANCE	8.0	135	83	112						
----------	-----	-----	----	-----	--	--	--	--	--	--

(Feet)

	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
BEARING										

(Relative, actual for Mag.)

DISTANCE										
----------	--	--	--	--	--	--	--	--	--	--

(Feet)

	#21	#22	#23	#24	#25	#26	#27	#28	#29	#30
BEARING										

(Relative, actual for Mag.)

DISTANCE										
----------	--	--	--	--	--	--	--	--	--	--

(Feet)

SCAPS
FIELD SURVEY FORM

DATE: 10 SEP 05
PROJECT#: NCTC NEWPORT FUEL FARM

BENCHMARKS.

	Description of Benchmarks	I D. on Benchmarks
(BM #1)	MONITORING WELL	TF 4 NW 123
(BM #2)	DOG HOUSE (WEST CORNER)	" 42
(BM #3)		
(BM #4)		
(BM #5)		

*Description of Benchmarks - Monitoring Wells, Survey stakes, Telephone Poles etc..

*Identification of benchmarks - Markings, symbols, etc..

Special Notes regarding Benchmarks & Survey:

* DRAWING I.E. DOG HOUSE INCORRECTLY. TRANSPOSED
DOG HOUSE ON DRAWING. HOLES ARE APPROXIMATELY
VARIABLE ON DRAWING

SURVEY:

Benchmark Orientation

Benchmark # BM1 bearing to BM2 in relative degrees 0
(BM #1, BM #2, etc) (BM #, Building, Tower, Mag. North, etc) (Mag. North - N/A)

Survey From BM to Project Push Location #'s:

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
BEARING	229	112	79	321	270	348	30			

(Relative, actual for Mag.)

DISTANCE	6	46	96	48	42	100	136			
----------	---	----	----	----	----	-----	-----	--	--	--

(Feet)

	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
BEARING										

(Relative, actual for Mag.)

DISTANCE										
----------	--	--	--	--	--	--	--	--	--	--

(Feet)

	#21	#22	#23	#24	#25	#26	#27	#28	#29	#30
BEARING										

(Relative, actual for Mag.)

DISTANCE										
----------	--	--	--	--	--	--	--	--	--	--

(Feet)

DATE: 10 SEP 95
PROJECT#: NEWPORT FUEL FARM

	Description of Benchmarks	I. D. on Benchmarks
(BM #1)	MONITORING WELL	TF 4 MAY 122
(BM #2)	DOG HOUSE (EAST CORNER)	TV 45
(BM #3)		
(BM #4)		
(BM #5)		

*Identifiaction of benchmarks - Markings, symbols, etc..

* 4 & 5 ARE SAME PUNY POINTS

Benchmark Orientation

Survey From Bm 1 to Project Push Location #'s:

	#21	#22	#23	#24	#25	#26	#27	#28	#29	#30
BEARING										
(Relative, actual for Mag)										
DISTANCE										
(Feet)										

SCAPS
FIELD SURVEY FORM

DATE: 28 AUG 95
PROJECT#: NETA NEWPORT RI FUEL FARMS 4&5

BENCHMARKS.

	Description of Benchmarks	I. D. on Benchmarks
(BM #1)	MONITORING WELL	TE4 MIV 119
(BM #2)	POG HOUSE (SE CORNER)	# 48
(BM #3)		
(BM #4)		
(BM #5)		

*Description of Benchmarks - Monitoring Wells, Survey stakes, Telephone Poles etc.

*Identification of benchmarks - Markings, symbols, etc

Special Notes regarding Benchmarks & Survey.

ACCESSABILITY TO SITE WAS RESTRICTED
DUE TO VEGETATION & OVERGROWTH
& MORE H.S. DISTANCE IS APPROXIMATE.

SURVEY:

Benchmark Orientation

Benchmark # BM 1 bearing to BM 2 in relative degrees 0
(BM #1, BM #2, etc) (BM #, Building, Tower, Mag North, etc) (Mag. North -N/A)

Survey From BM 1 to Project: Push Location #'s:

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
BEARING	203.0	95.0	197.0	304.5	346.0	60.0	35.0	199.5	163.0	

(Relative, actual for Mag.)

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
DISTANCE	5.0	29.0	22.0	23.0	96.0	126.4	148.0	46.0	48.0	

(Feet)

	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
BEARING										

(Relative, actual for Mag.)

	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
DISTANCE										

(Feet)

	#21	#22	#23	#24	#25	#26	#27	#28	#29	#30
BEARING										

(Relative, actual for Mag.)

	#21	#22	#23	#24	#25	#26	#27	#28	#29	#30
DISTANCE										

(Feet)

APPENDIX B - SYSTEM DESCRIPTION

APPENDIX B - SYSTEM DESCRIPTION

B.1. LIF SYSTEM DESCRIPTION.	2
B.2. QUALITY CONTROL & CALIBRATION STANDARDS.	4

APPENDIX B - SYSTEM DESCRIPTION

B.1. LIF System Description.

The LIF system is capable of measuring the occurrence of polycyclic aromatic hydrocarbons of 3 or more rings.

A schematic diagram of the fiber optic fluorometer system is shown in Figure B-1. The system was adapted from a design originally developed for in-situ fluorescence measurements in sea water (Lieberman, 1991; Inmand, 1990; Lieberman, 1989). The penetrometer sensor system uses two 365 micron diameter UV/visible transmitting (high OH silica clad silica) optical fibers. One fiber is used to carry excitation radiation down through the penetrometer rod and a second fiber collects the fluorescence generated in the soil sample and carries it back to the detector system at the surface. The standard fiber length is 100 meters which permits collection of fluorescence data to the maximum push depth (50 meters) using a standard 20 ton penetrometer rig. Excitation and emission fibers are isolated from the soil at the probe tip by a 6.35 millimeter diameter sapphire window mounted flush with the outside of the probe approximately 60 centimeters from the tip.

Excitation radiation is provided by a pulsed nitrogen laser (Model PL2300, Photon Technology, Inc.) that operates at 337 nanometers with a pulse width of 0.8 nanoseconds and a pulse energy of 1.4 millijoules. The beam is coupled into the excitation fiber using a 2 inch focal length quartz lens. The primary output of the laser is at 337 nanometers; however, there are secondary fluorescence lines in the region from 380 to 459 nanometers. In order to minimize the contribution of these lines to the measured fluorescence backgrounds, a mirror which selectively reflects only 337 nanometers is used to redirect the laser line before coupling it into the excitation fiber. Optical triggering of the detector eliminates problems associated with laser jitter.

A photodiode array detector system is used to quantify the fluorescence emission spectrum brought back to the surface over the receiving fiber. The detector system consists of a Model 1420 Intensified Photodiode Array Detector (EG&G PARC) coupled to a quarter-meter spectrograph which houses a 300 line/millimeter diffraction grating. The 1024 element array (700 elements are intensified) consists of 25 micron wide diodes centered at 25 micron increments. For the 300 line/millimeter grating, the dispersion of the spectrograph translates to a spectral resolution of 0.45 nanometers per pixel at the array surface when a 25 micron input slit is used. Readout of an emission spectra requires approximately 16 milliseconds. Because the detector can be readout quickly it is possible to add spectra from multiple laser shots in order to improve the signal to noise ratio of the measurement. At present, 20 laser shots are used per sample interval.

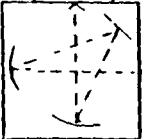
OPTICS
 (DISPLAY: B, AUTORANGE,
 COUNTS OFF; OTHER
 PARAMETERS AS BEFORE)

1304
 GATE
 PULSE
 AMPLIFIER

MODEL 1303
 GATE PULSE
 INTERFACE

GATE IN
 GATE OUT
 GATE IN

1420
 DETECTOR



1212
 DETECTOR

F0

F0

F0
 LEADS

CHB
 IN
 CHA
 IN

JD2000

GPB

IEEE

DISPLAY: A
 AUTORANGE
 LINER
 TRIGGER EXT
 COUNTS 20
 MODE: ENERGY
 } AS SET BY
 PROGRAM

N₂
 LASER

F0

OPTICAL
 TRIGGER

1304/5
 PULSER

M1412/M1420
 DETECTOR

1703 CAPD
 ANALOG (VIDEO OUTPUT)
 A/D (A/D INPUT)
 SCAN CONTROL

OMA

TRIGGER
 IN
 SYNC
 OUT

HOST
 COMPUTER

GPB

IEEE

* MAIN
 TTL TRIGGER OUTPUT

APPENDIX B - SYSTEM DESCRIPTION

Control and readout of the detector is performed by a Model 1460 optical multichannel analyzer (OMA) (EG&G PARC). Measurements are initiated by an electronic signal from the OMA that fires the laser. The laser pulse then triggers an optical detector which sends an electronic signal to a fast pulsed (Model 1304, EG&G PARC). The pulsed implements an appropriate delay (approximately 350 nanoseconds for a 50 meter fiber and 750 nanoseconds for a 100 meter fiber), and gates the detectors "on" for a period of 100 nanoseconds. Time-gating of the detector is set so that the detector is gated "on" to coincide with the arrival of the fluorescence signal at the detector. Because most fluorophores of interest have fluorescent lifetimes in the range of 5 to 100 nanoseconds, time-gating the detector maximizes signal-to-noise by minimizing contributions to the signal from background light and detector noise.

The resulting fluorescent intensity is a measure of the response to the input energy. The greater the number, the greater the amount of responding energy. The relationship is linear in that with increasing amounts of PAHs, the responding energy increases. The response is relative to the type of PAH so that the relationship is can't be exactly determined. This makes SCAPS a semi-quantitative analysis technique. If the relationship could be determined it would be quantitative.

A 486-based microprocessor host computer is used to automate the overall measurement process. The host computer controls the OMA system and stores fluorescence emission data received from the OMA, collects data from strain gauges, estimates soil type from strain gauge data and monitors depths from transducers on the hydraulic ram. A typical fluorescence emission spectrum from the LIF-POL sensor is shown in Figure 3. As the probe is pushed into the soil the data acquisition software generates real-time depth plots of maximum fluorescence intensity, wavelength of maximum intensity, point resistance, sleeve friction and soil characteristics as interpreted from the strain gauge data. Under normal operating conditions, a fluorescence emission spectrum is collected approximately every 2 seconds. For the standard push rate of 2 centimeters/sec this corresponds to a vertical resolution between measurements of 2-4 centimeters. The entire fluorescence emission spectrum is stored on a fixed disk to facilitate post-processing of the data.

B.2. Quality Control & Calibration Standards.

Two different types of standards are used during field operations. A quality control standard based on a solution of quinine sulfate is used to ensure the system is functioning correctly. This standard also allows the data to be normalized if the probe is changed in the middle of field operations. A set of calibration standards is prepared to evaluate the sensitivity of the sensor to the soil type at the site and the fuel type expected to be encountered. This set of standards is used to establish the noise in the measurement as well as the sensitivity of the sensor to the soil/fuel combination.

APPENDIX B - SYSTEM DESCRIPTION

The quality control standard, designed to evaluate the system performance and internal noise, consists of dilute sulfuric acid mixed with 10 parts per million (ppm), by weight, quinine sulfate. Quinine sulfate has a high quantum efficiency so that it fluoresces quite strongly, is chemically stable, easily reproducible, and exhibits minimal photodegradation.

A single measurement of the quinine sulfate standard averages 20 fluorescence spectra (analogous to the in-situ push averaging), and the measurement is repeated three times directly before and after a push. The short term system stability is defined as the standard deviation of the three measurements. Typical results show an average standard deviation of 1-2 percent of the fluorescent intensity.

The quinine sulfate data is also used to normalize data taken using different probes. Figure B-2 shows the quinine sulfate data collected pre push during the investigation. The quinine sulfate data was used to normalize the data for all of the pushes for a consistent data set throughout the site.

In addition to the quinine sulfate quality control standard, series of spiked soil standards are prepared using soil gathered from the site. The sensitivity of the sensor will depend on the type of hydrocarbons encountered. For instance, diesel fuel (which is composed mostly of heavy polynuclear aromatic hydrocarbons (PAHs)) tends to fluoresce strongly when excited by a nitrogen laser, so that a small amount of fuel can give a large fluorescence signal. On the other hand, some jet fuels (e.g. JP-5) are composed of a greater fraction of lighter PAHs, which are not efficiently excited by the nitrogen laser, so that a larger amount of jet fuel is needed to give the same fluorescence signal as diesel fuel. Hence the sensor is less sensitive to this type of fuel.

The fuel chosen as the standard for the investigation was diesel fuel marine (DFM). One of the difficulties in establishing the target fuel is that often many different fuels were used during the history of the site. In addition, the contaminant has aged and weathered from long term exposure at the site. This is the same problem that many other quantifying analytical methods also encounter, and for this reason, SCAPS LIF-POL sensor is intended to be a screening tool to establish the presence of contamination, rather than a quantitative method for measuring the amount of contamination.

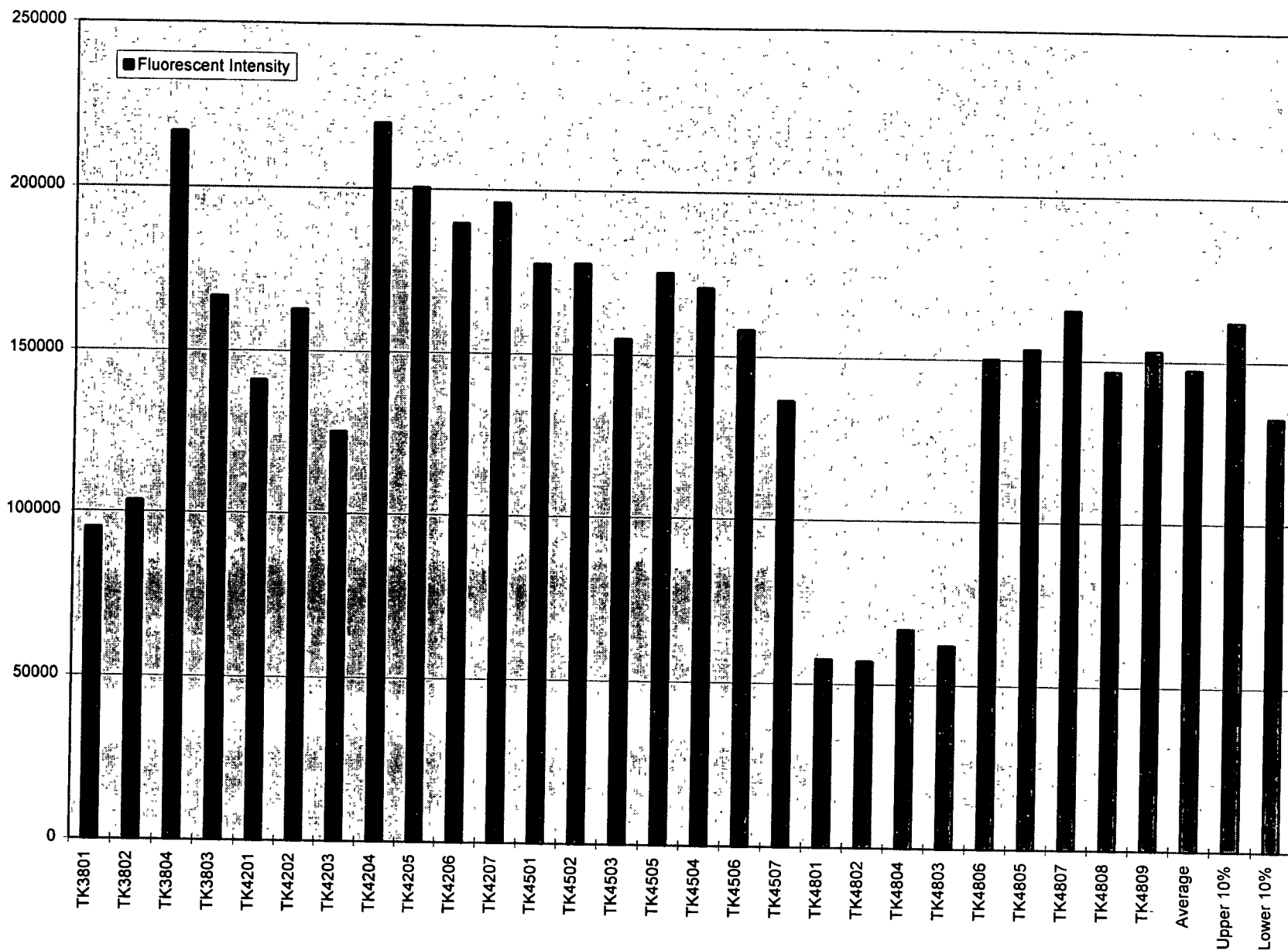
To prepare the standards, a sample of soil was collected from the site. The soil was gathered from near surface, at a depth of 6-12 inches, to reduce hydrocarbon contamination from aerosols and other airborne particulant, and was grossly sifted to remove sticks and other large debris. A series of soil samples were prepared by spiking the soil with known DFM concentrations. The spiked samples were placed on a shaker table for 24 hours to uniformly distribute the fuel.

The fluorescence spectra from the spiked samples were measured at the start of each day of field operations. As with the quinine sulfate, 20 shots are averaged to provide a single measurement. The standard deviation of the calibration standards reflects both the

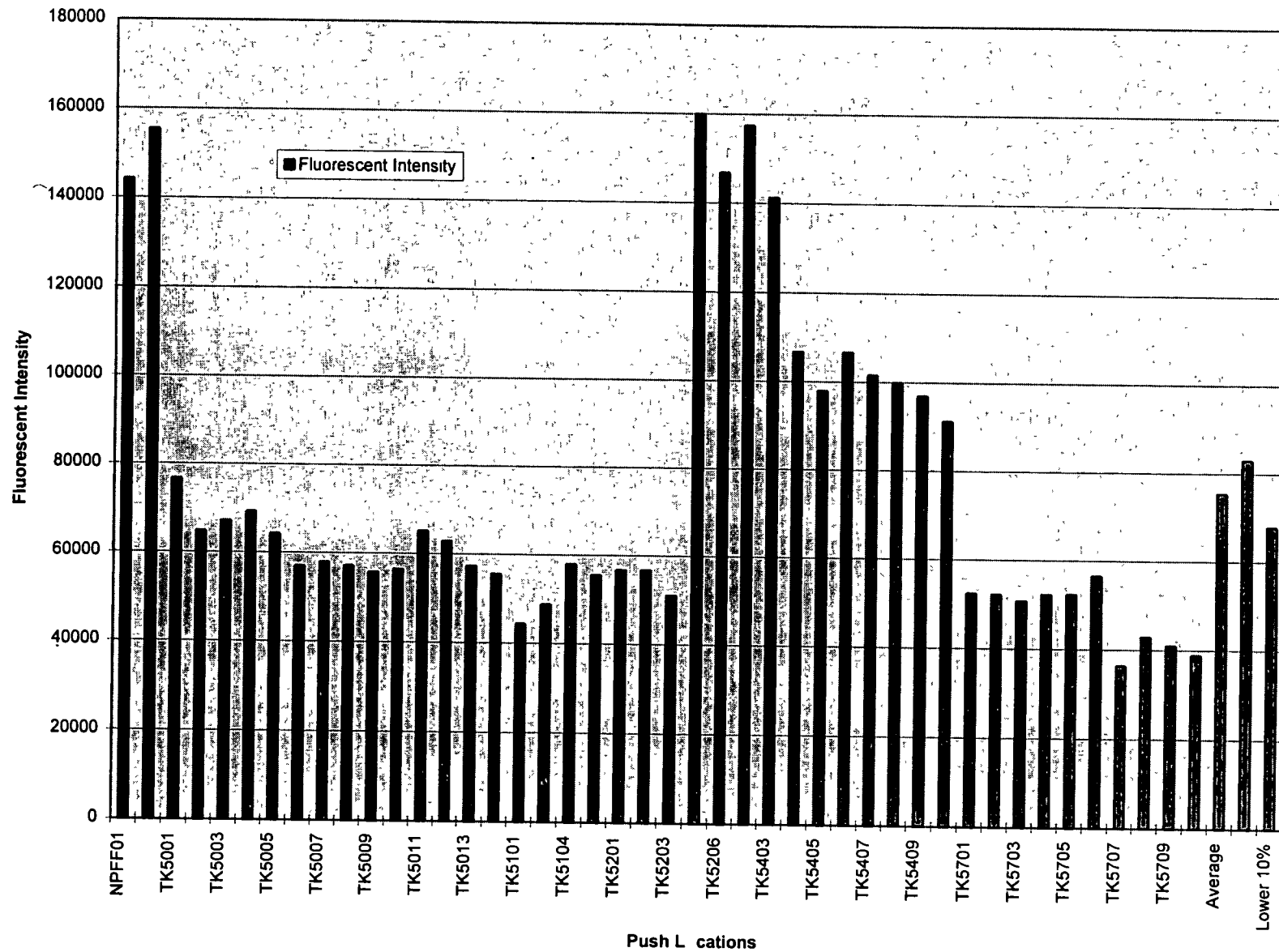
APPENDIX B - SYSTEM DESCRIPTION

internal noise as well as the variations due to non-homogeneous in the soil, and can be compared to that of the internal standard (quinine sulfate) to assess the non-homogeneous of the soil at the site. The calibration data is included in Appendix D. This data is used to calculate the sensitivity of response of the fuel to the local soil, as well as the baseline and standard deviations that are needed to determine the detection threshold at the site.

NETC Newport, R.I.
Tank Farm #4
Pre-Push Quinine Sulfate System Response



NETC Newport, R.I.
 Tank Farm #5
 Pre-Push Quinine Sulfate System Response



APPENDIX C - DETECTION THRESHOLD DETERMINATION

APPENDIX C - DETECTION THRESHOLD DETERMINATION

C.1. DETECTION THRESHOLD	2
C.2. FLUORESCENT THRESHOLD	4
C.2.1 HISTOGRAM.....	5
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C.3. GROUNDWATER MODELING SYSTEM ASSUMPTIONS	10

APPENDIX C - DETECTION THRESHOLD DETERMINATION

C.1. Detection Threshold

The ability of the LIF sensor to measure small amounts of contaminant will be limited by:

- Its variable sensitivity to the hydrocarbons present in the soil
- The ambient fluorescence of the soil
- Fluctuations in the output energy of the nitrogen laser
- Variations in the detector temperature
- Changes in optical alignment

In practice, setting the detection threshold is a two part process. The first part consists of establishing a fluorescence threshold. This is the value of fluorescent intensity that must be exceeded to indicate the presence of contamination. The second part is to relate this fluorescence threshold to a correlation of petroleum concentrations to establish the detection threshold in milligrams/kilograms (ppm).

The correlation of petroleum concentrations is determined by preparing standards consisting of soil with known concentrations of contaminant. This procedure is carried out using only the lower concentration calibration standards. Experiments have shown that for the full range of calibration standards (up to 25,000 ppm), the calibration data is not well fit by a linear regression. This is not surprising because of the complicated interaction between the fuel and soil type. By restricting the data set to the low concentration samples, the data is well fit using the linear regression and this approach gives much more confidence in the sensitivity near the detection threshold.

The fluorescence intensity for each calibration sample is measured in triplicate daily at the start of operations. The three measurements are averaged to provide a single measured intensity for each concentration. The data is regressed to establish a slope and intercept. The intercept is given by the intensity of the unspiked calibration standard (0 ppm). The slope is found from the least squares fit using this intercept.

Intercept: $b = y_0$ = intensity measured on 0 ppm calibration sample

Slope: $M = \Sigma(y_i - y_0)x_i / \Sigma(x_i^2)$

The variance in the regression is given by:

$$V = \Sigma(mx_i + b - y_i)^2 / (n-1)$$

where V is the biased estimator of the residual mean square of the fit and the data, and the standard deviation of the fit is:

APPENDIX C - DETECTION THRESHOLD DETERMINATION

$$\sigma = \text{Sqrt}(V)$$

For the calibration soils, x is given by the concentration (C) of the target fuel, while y is the measured fluorescence intensity (I) of the sample. The sensitivity and background are defined as follows:

$$\text{sensitivity} = \text{slope of fitted data} = m$$

$$\text{background} = \text{intercept of fitted data} = b$$

The noise is defined as:

$$\text{noise} = \text{standard deviation of the fit} = \sigma$$

The noise is defined as 1.00 times the standard deviation in order to establish a conservative fluorescence threshold. (The fluorescence threshold is given as the sum of the background and the noise values). Using the standard assumption of a normal “student’s T” distribution statistics, and the number of points used in these fits (typically 8), this corresponds to an 80% confidence limit. This was chosen because the sensor is used as a field screening tool, and it was considered important to reduce the possibility for false negatives.

The quantities needed to calculate the fluorescence threshold and the detection threshold are now known. These are determined from:

$$\text{Fluorescence threshold} = \text{background} + \text{noise} = b + \sigma$$

$$\text{Detection threshold} = \text{noise} / \text{sensitivity} = \sigma / m$$

The fluorescence threshold is the quantitative limit that the fluorescence intensity must exceed in order to qualify as a “detect”. If the fluorescence intensity is less than the fluorescence threshold, the sensor indicates “none-detected”.

The detection threshold is the amount of contaminant that corresponds to the fluorescence threshold. This is the practical detection level in ppm, as determined from the calibration standards for a given site, and is found by taking the fluorescence threshold and working back to the concentration needed to produce this intensity. The detection threshold is used to compare the ppm of petroleum present in the sample as determined by Total Recoverable Petroleum Hydrocarbon (TRPH, EPA Method 8015-Modified) and Total Petroleum Hydrocarbon (TPH, EPA Method 418.1) with the fluorescence measurements for the validation phase of the site characterization. TPH and TRPH values above the detection threshold value are considered “detects”, while those less than the detection threshold are not detectable by the SCAPS sensor.

APPENDIX C - DETECTION THRESHOLD DETERMINATION

This method for setting the fluorescence threshold and detection threshold is based on a standard analytical chemical approach for quantifying the response of a detector. It is also easily reproducible, and the results follow directly from applying a well defined series of data reduction techniques that can be documented and repeated at any site.

This approach does have limitations. The background level is determined by a single soil sample, chosen near the surface at one location from the site. It is possible that the soil sample is contaminated, so that the background represents not only the natural fluorescence but a contribution from the contaminant. Even if it is not contaminated, the background from this single sample may not be representative of the whole site. The following additional interpretation approaches have been developed because of this single soil sample limitation.

C.2. Fluorescent Threshold

C.2.1 Histogram

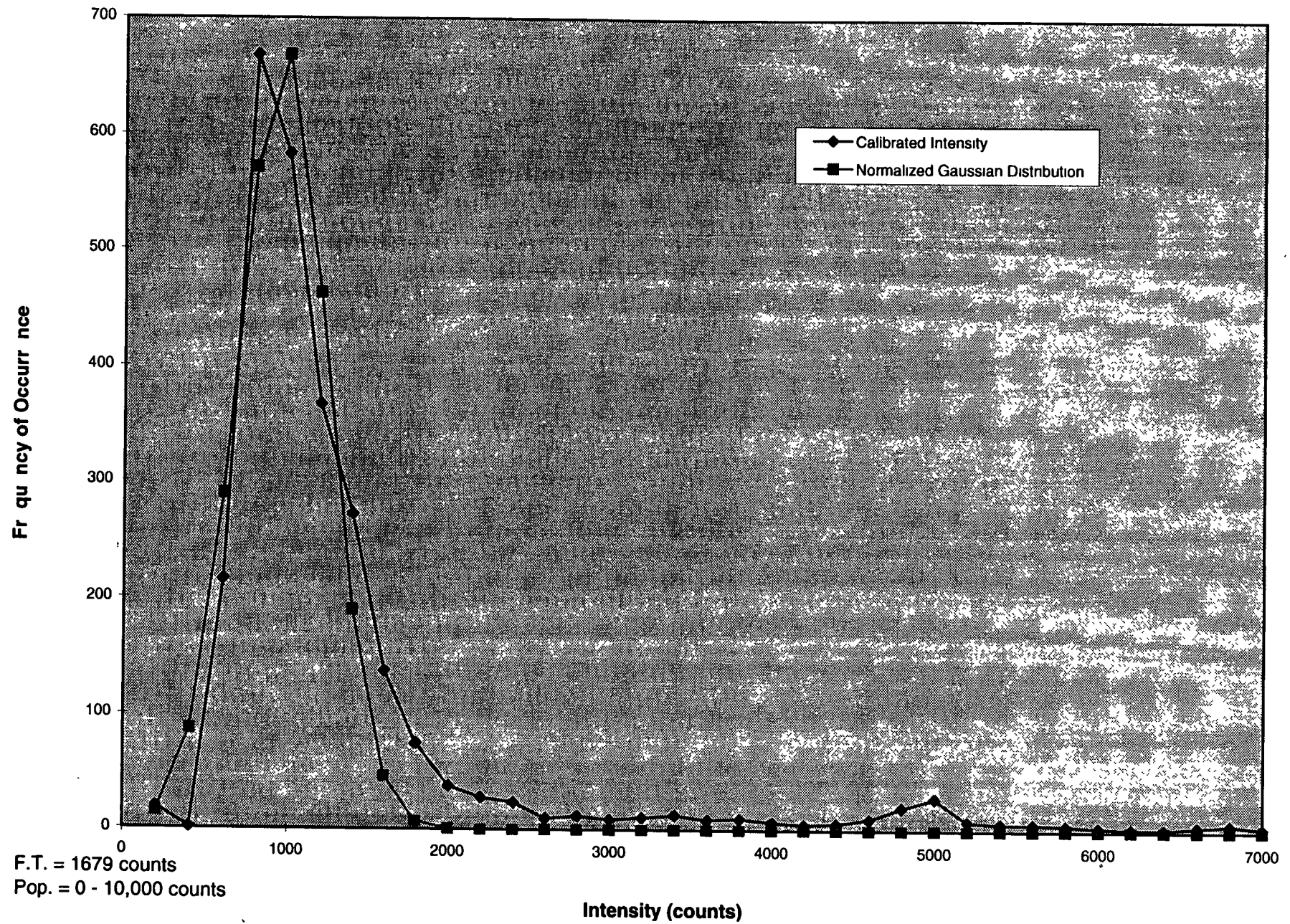
It can be shown that LIF responses from the uncontaminated soil system are normally (Gaussian) distributed. It can be shown that LIF responses from the contaminated soil system are not normally distributed. This may be due to a variety of reasons including but not limited to:

- the limited vertical duration of the contaminant when compared to the uncontaminated soil system
- the relatively recent release of contamination on the geologic time scale

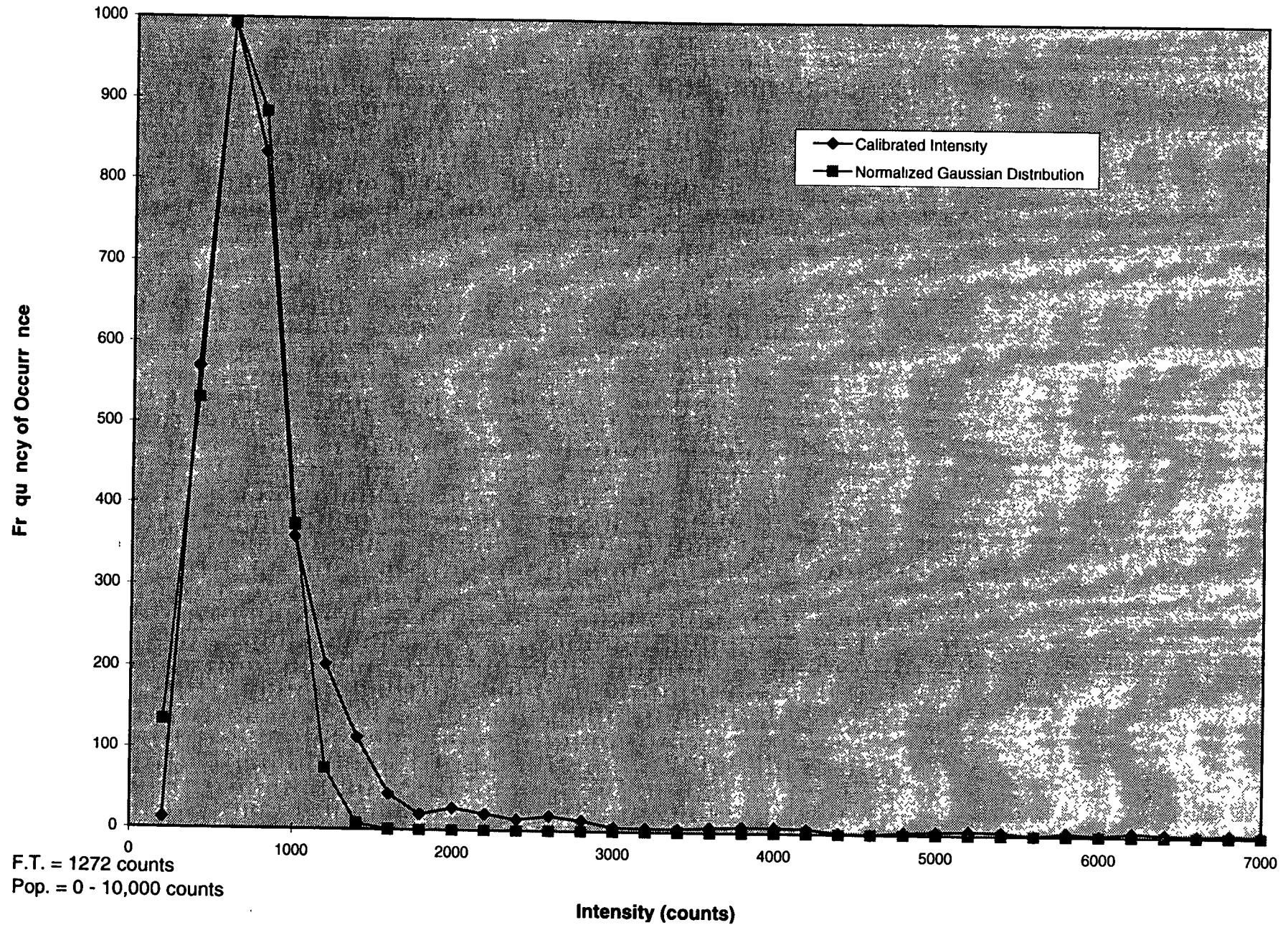
The underlying principle is that these are two different populations. The value of Fluorescence that marks the separation of the two populations is referred to as the Fluorescent Threshold (FT). Once the FT is determined, the LIF results can be interpreted to define the contaminated population.

The procedure consists of Ranking all the Fluorescent Intensity results generated during an investigation from least to highest without regard to depth or push location. Next, determine the frequency of occurrence within each 200 count range. With this frequency of occurrence information, construct a histogram as shown in Chart 1.

NETC Newport, RI
Tank Farm 4



NETC Newport, RI
Tank Farm 5



APPENDIX C - DETECTION THRESHOLD DETERMINATION

On this histogram plot a normal distribution using the formula:

$$f(x) = (\exp(-(x-\mu)^2/2\sigma^2) / \sqrt{2\sigma^2\pi})$$

Limit the calculation of the mean and standard deviation to the population that appears to be not-contaminated. Then generate the normal distribution normalized to the most frequently occurring Fluorescent Intensity. At this point it should be obvious that a portion of the Fluorescent Intensity data lie along the normal distribution curve with the larger values representing the contaminated population. Perform a students t-test comparison to find the best fit of the normal distribution and the Fluorescent Intensity data set. Calculate the standard deviation and mean values based on the values that best fit the probability curve. The point at which the Fluorescent Intensity data no longer fits the normal curve should be obvious by inspection or by calculating the 95% upper confidence limit value:

$$UC = \mu + t\sigma \text{ With } t = 1.96 \text{ (students } t \text{ value for } n = \text{infinity)}$$

C.2.2 Quantile

Another method to determine the underlying distribution of data is the Quantile approach. This breaks the data set up by percentage of population so that 50% of the population lies below and above the mean value. Through the quantile method the FT can be determined by inspection.

The procedure involves ranking the data from every push without regard to depth or location from lowest to highest. For each value calculate the quantile:

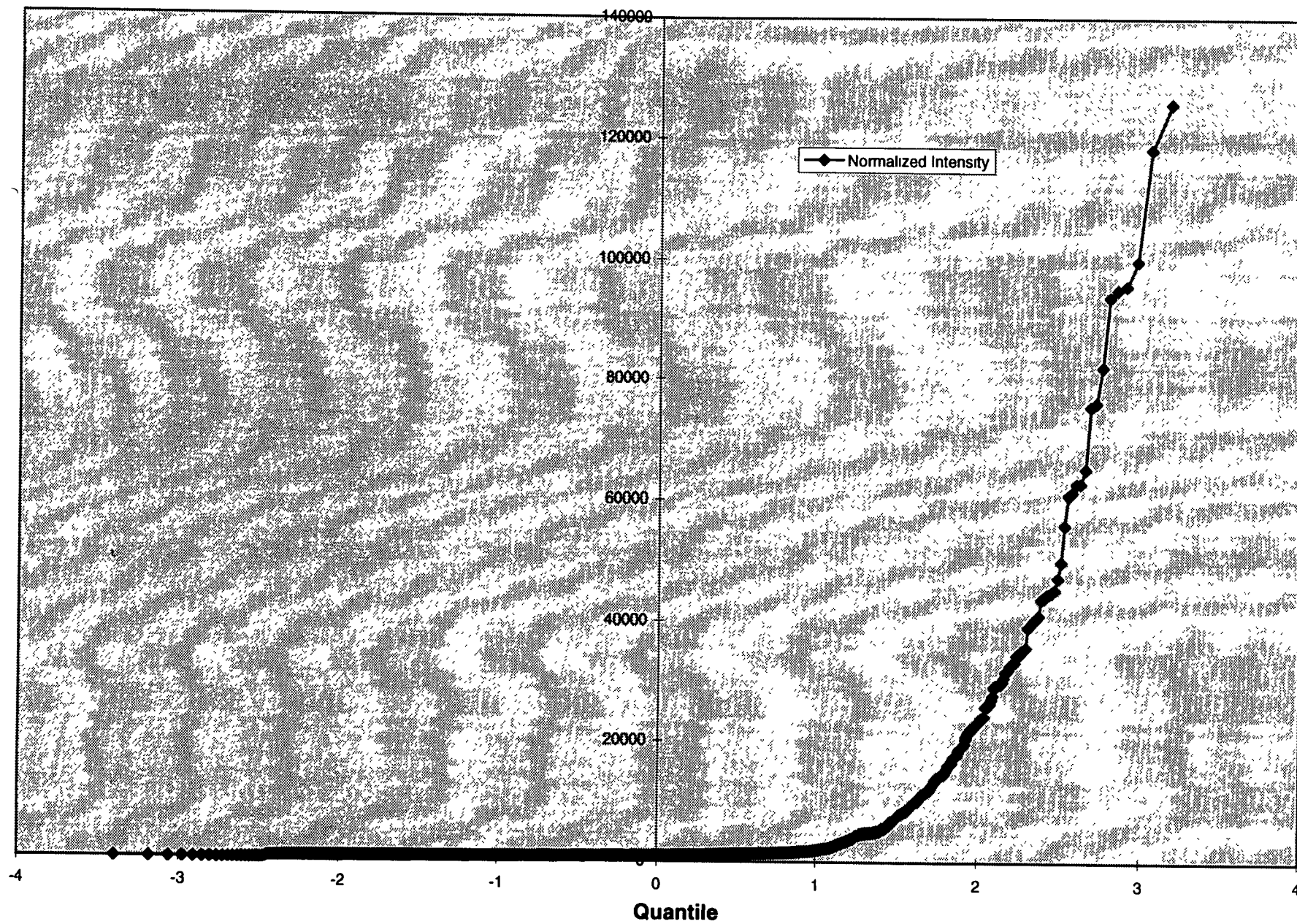
$$\text{use: } f_i = (i-3/8)/(n+1/4)$$

$$\text{to calculate: } Q(f_i) = 4.91 [f_i^{0.14} - (1 - f_i)^{0.14}]$$

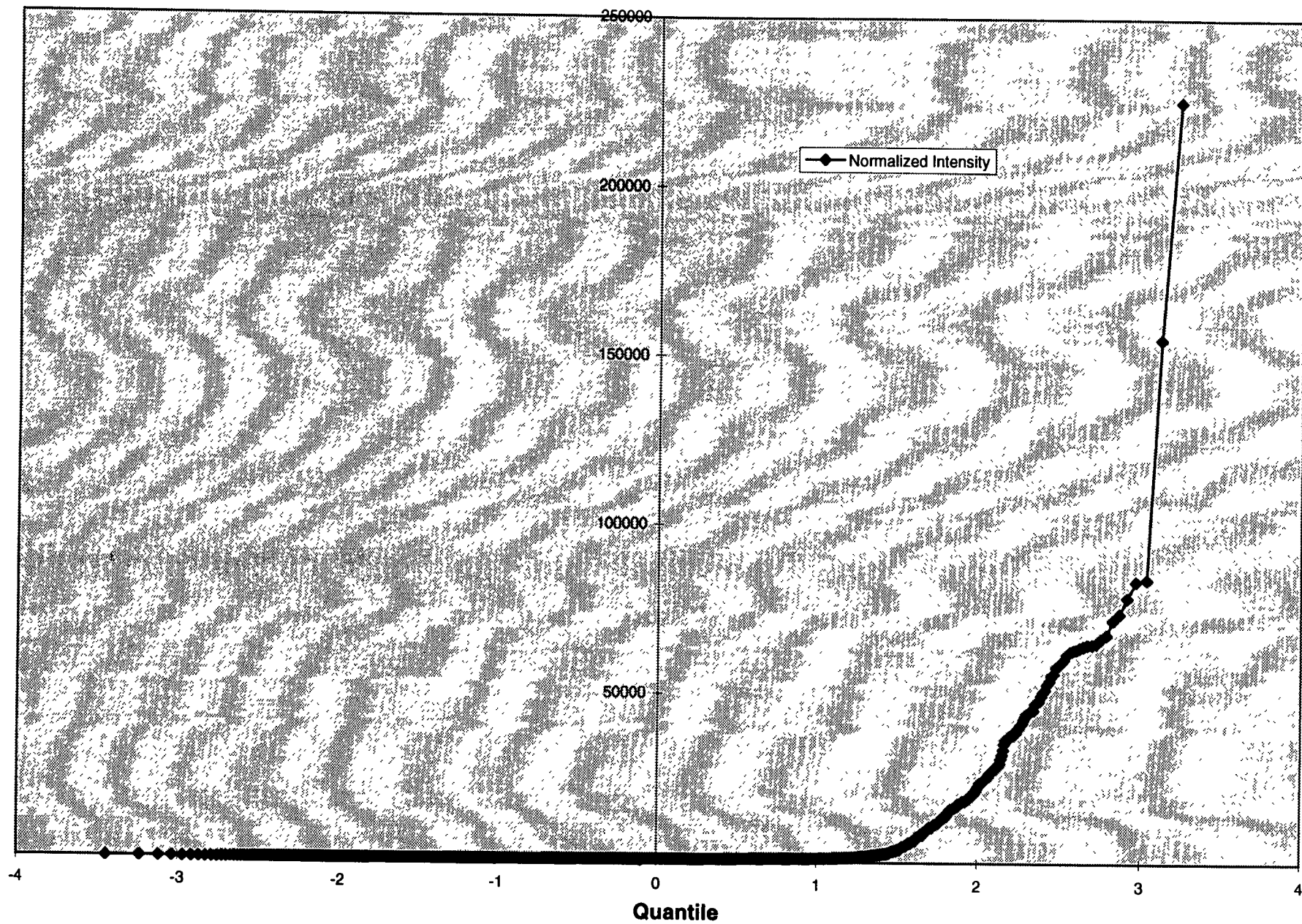
Plot $Q(f_i)$ verses the intensity for each corresponding rank as shown in Chart 2. Linearity indicates that the sample data are consistent with a normal reference distribution. Different linear regions of differing slopes known as clusters will be obvious. Each cluster represents a different population. There is one population of relatively low intensity values that represents one cluster and a population of high intensity values that represents the contaminated population. It may be possible to identify saturated conditions by observing a further cluster at higher intensity values.

This method is a powerful interpretation tool that is best used in conjunction with the following reference: "Statistical Design and Analysis of Experiments, With Applications to Engineering and Science" by Mason, Robert., et al., John Wiley and Sons, Inc., 1989.

NETC Newport, Tank Farm 4
Quantile Distribution



NETC Newport, Tank Farm 5 Quantil Distribution



APPENDIX C - DETECTION THRESHOLD DETERMINATION

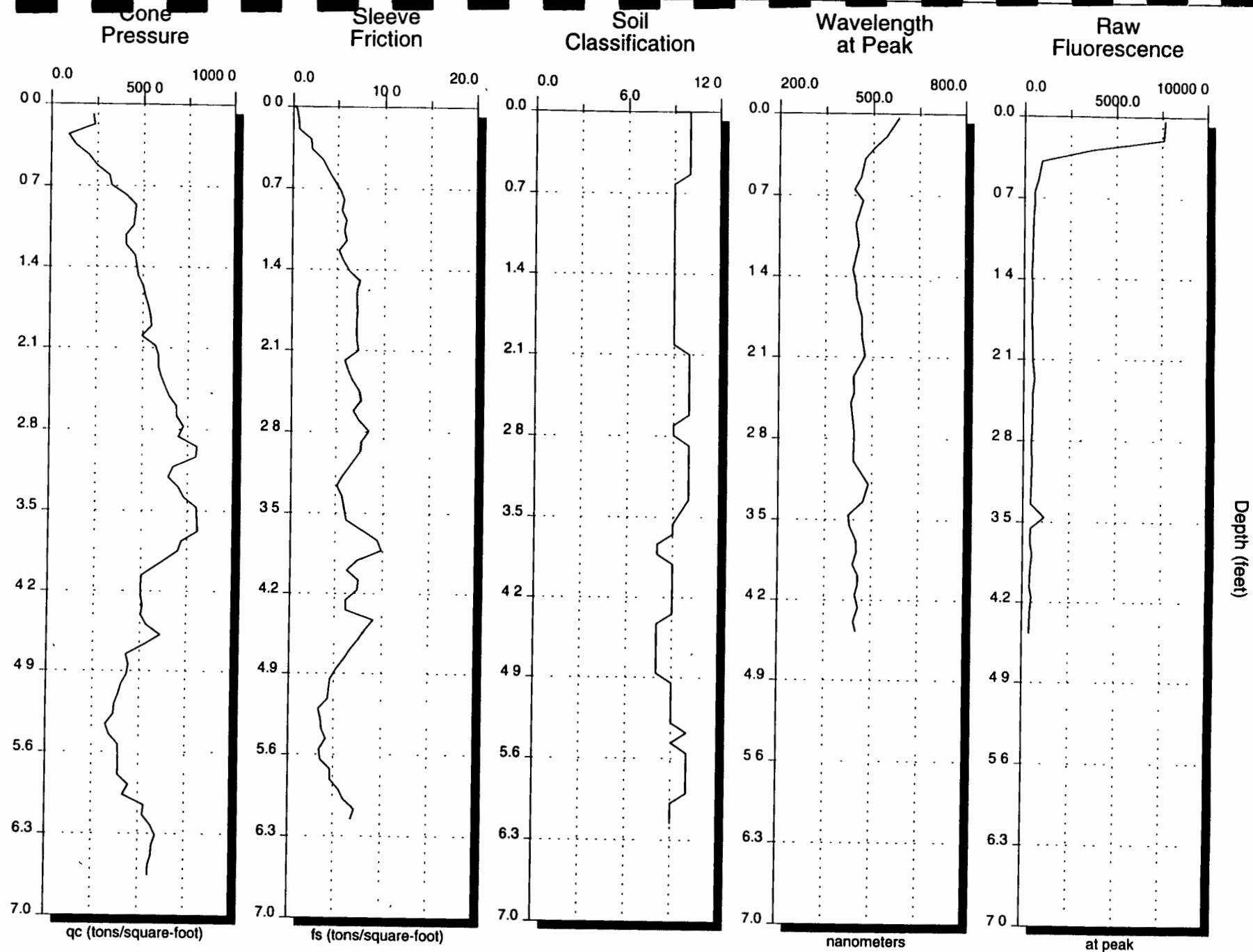
Groundwater Modeling System Assumptions.

The Department of Defense Groundwater Modeling System (GMS) is a comprehensive graphical user environment for numerical modeling. It was developed by the Engineering Computer Graphics Laboratory of Brigham Young University in cooperation with the U.S. Army Corps of Engineers Waterways Experiment Station. GMS is intended to be used for groundwater modeling applications but the interface has been written in a general fashion so that it can be used as a platform for any type of two or three-dimensional numerical modeling.

The interpolation of fluorescent intensity data is done using the Inverse Distance Weighted (IDW) method. This method is based on the assumption that the interpolating surface should be influenced most by the nearby points and less by the more distant points. Gradient Hyperplane Nodal Function was used with the 100 nearest nodes and 32 nearest Octants to generate the interpolation. The following table gives the grid information.

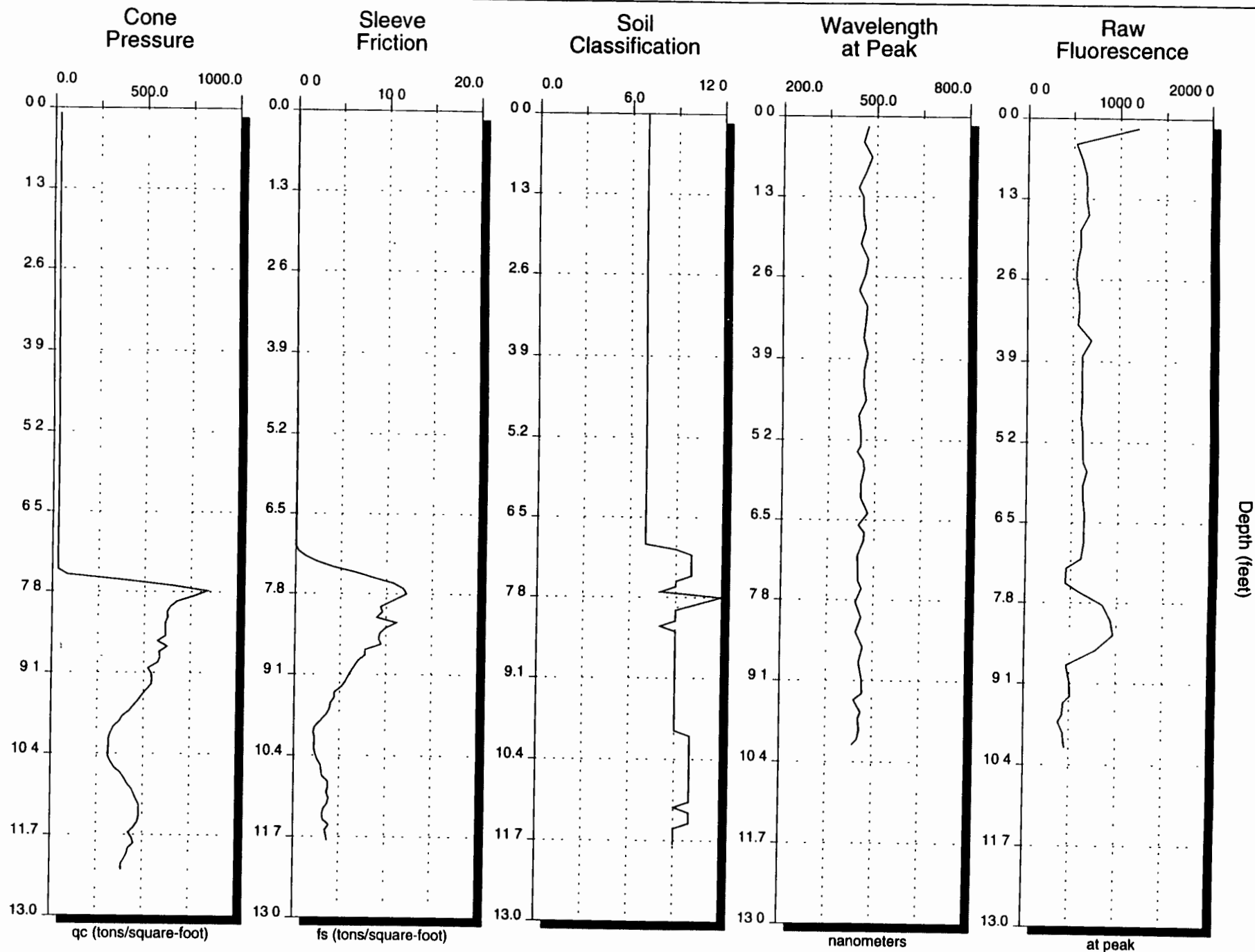
	Easting (feet)	Northing (feet)	Depth (feet)
Start	384873.18	174822.89	-35.0
End	384959.96	174895.61	0
Grid Spacing	10	9.5	6 inches

APPENDIX D - STRIP CHARTS



Time: 08:59:57
Date: 09-06-1995
Version: 1.0

Push: C:\BASIC71\DATA\DR01.PSH
Probe: C:\BASIC71\DATA\PROBE14C.PR
Calibration: C:\BASIC71\DATA\SEP06DFM.CAL



Time: 10:15:07

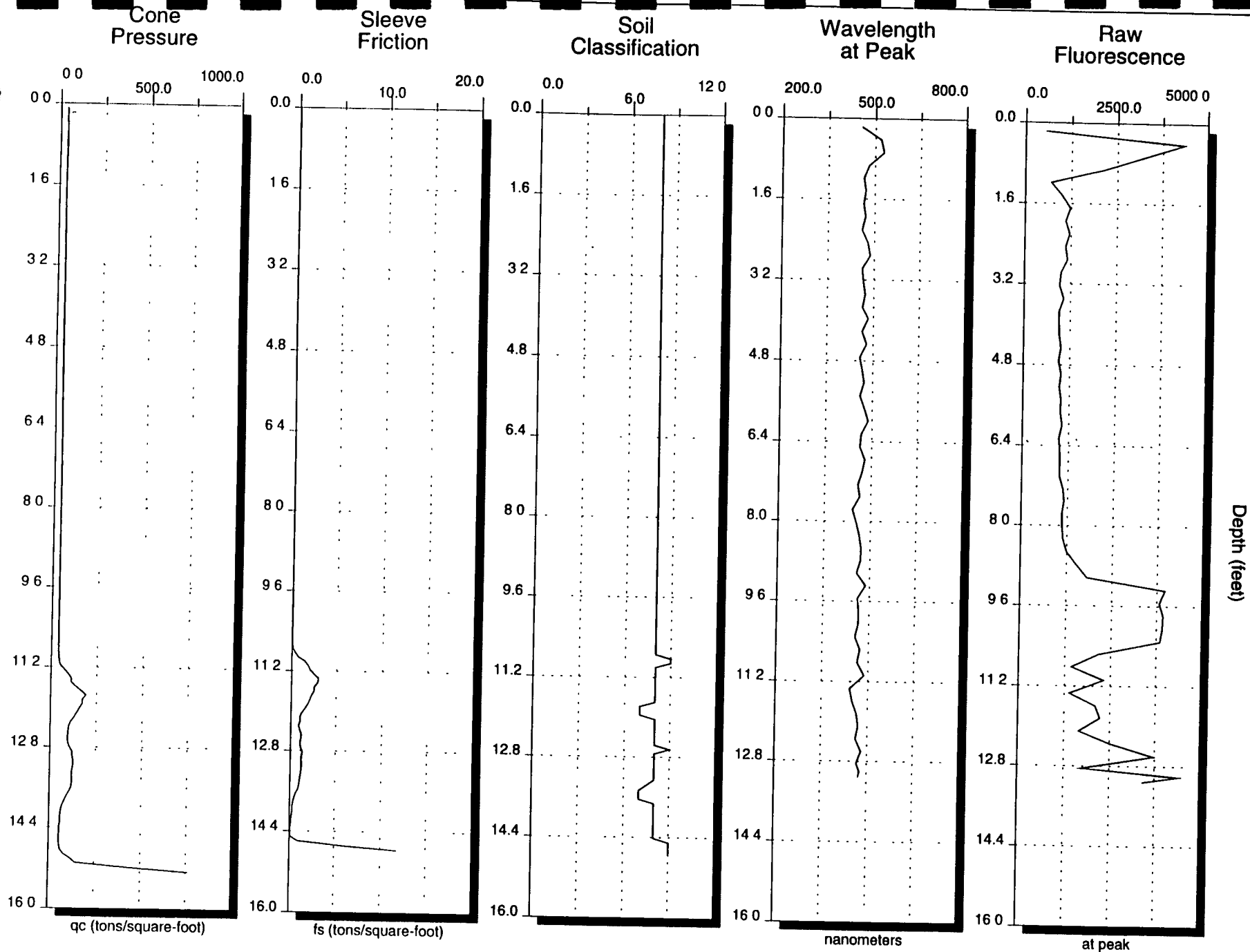
Date: 09-06-1995

Version: 1.0

Push: C:\BASIC71\DATA\DR02.PSH

Probe: C:\BASIC71\DATA\PROBE14C.PR8

Calibration: C:\BASIC71\DATA\SEP06DFM.CAL



Time: 14:42:58

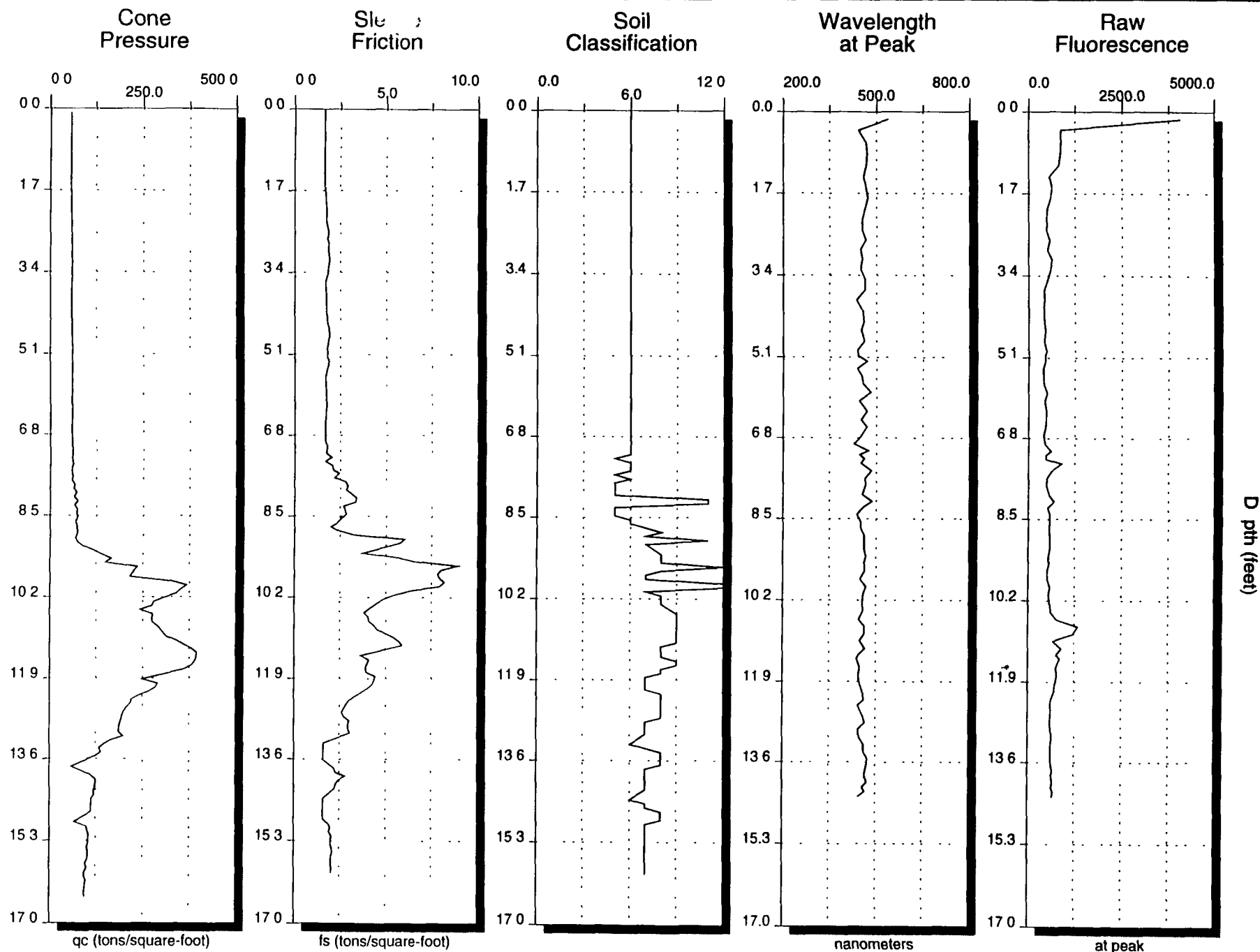
Date: 09-06-1995

Version: 1.0

Push: C:\BASIC71\DATA\DR03.PSH

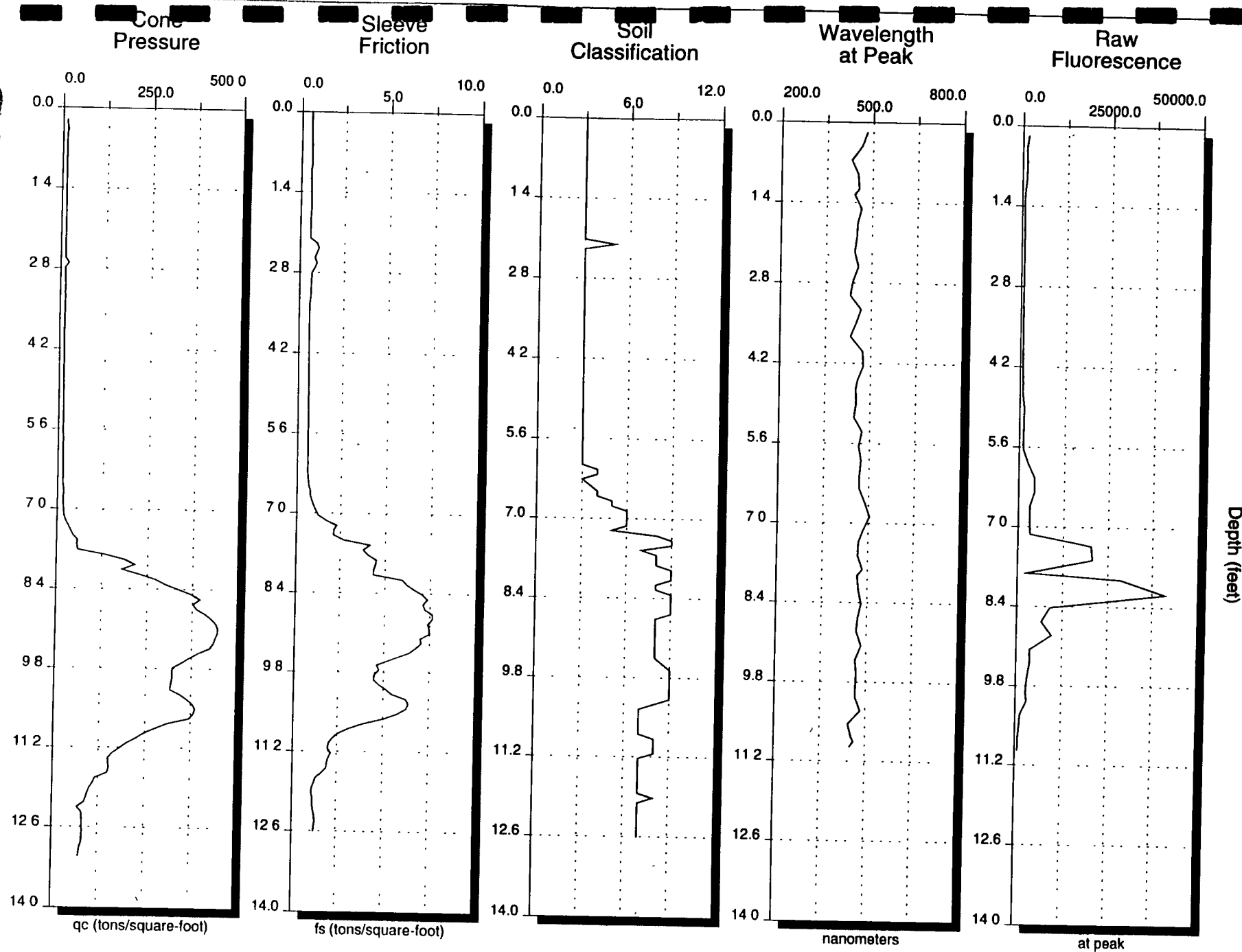
Probe: C:\BASIC71\DATA\PROBE14C.PR8

Calibration: C:\BASIC71\DATA\SEP06DFM.CAL



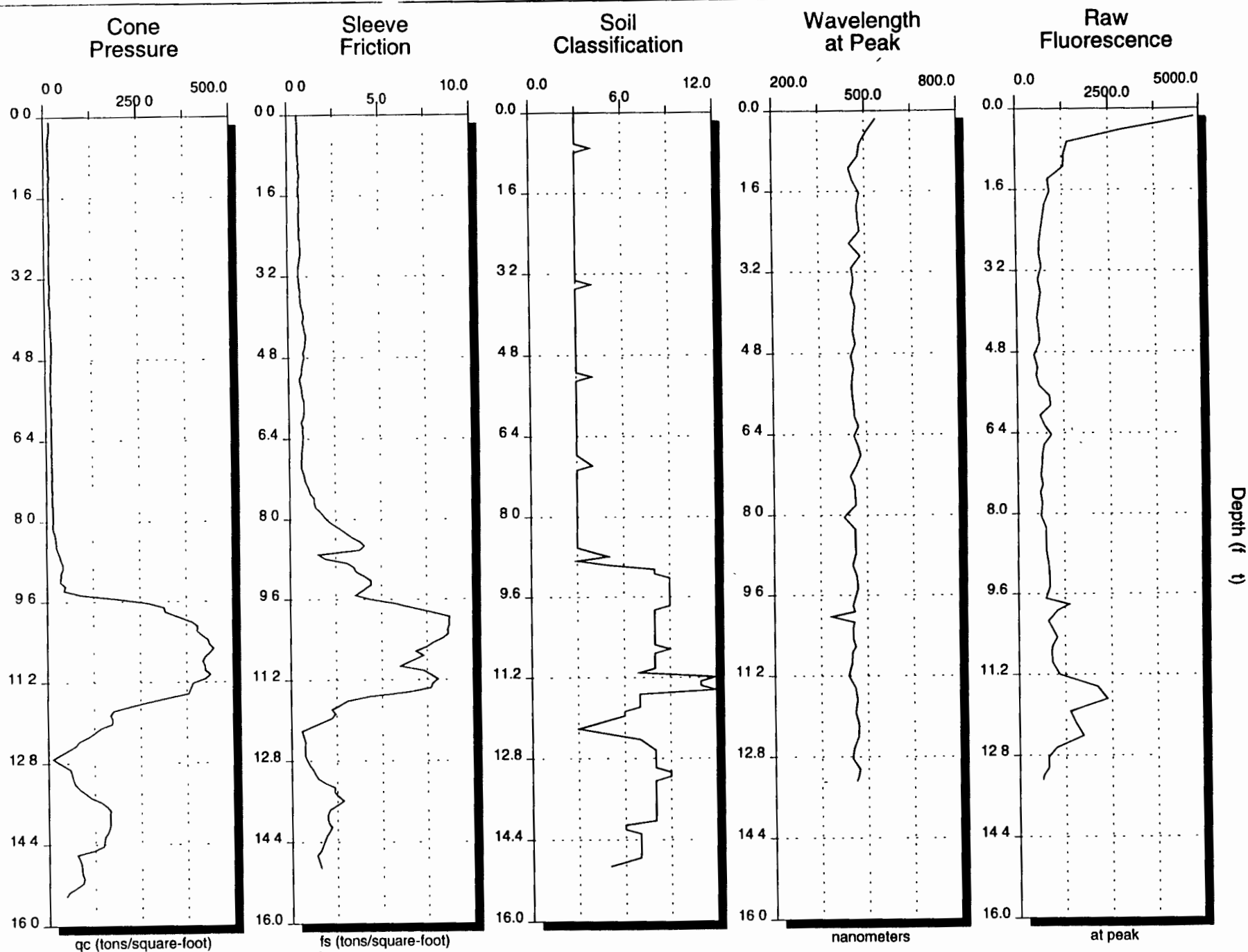
Time: 13:39:05
Date: 09-10-1995
Version: 1.0

Push: C:\BASIC71\DATA\DR04.PSH
Probe: C:\BASIC71\DATA\PROBE14C.PR
Calibration: C:\BASIC71\DATA\SEP10DFM.CAL



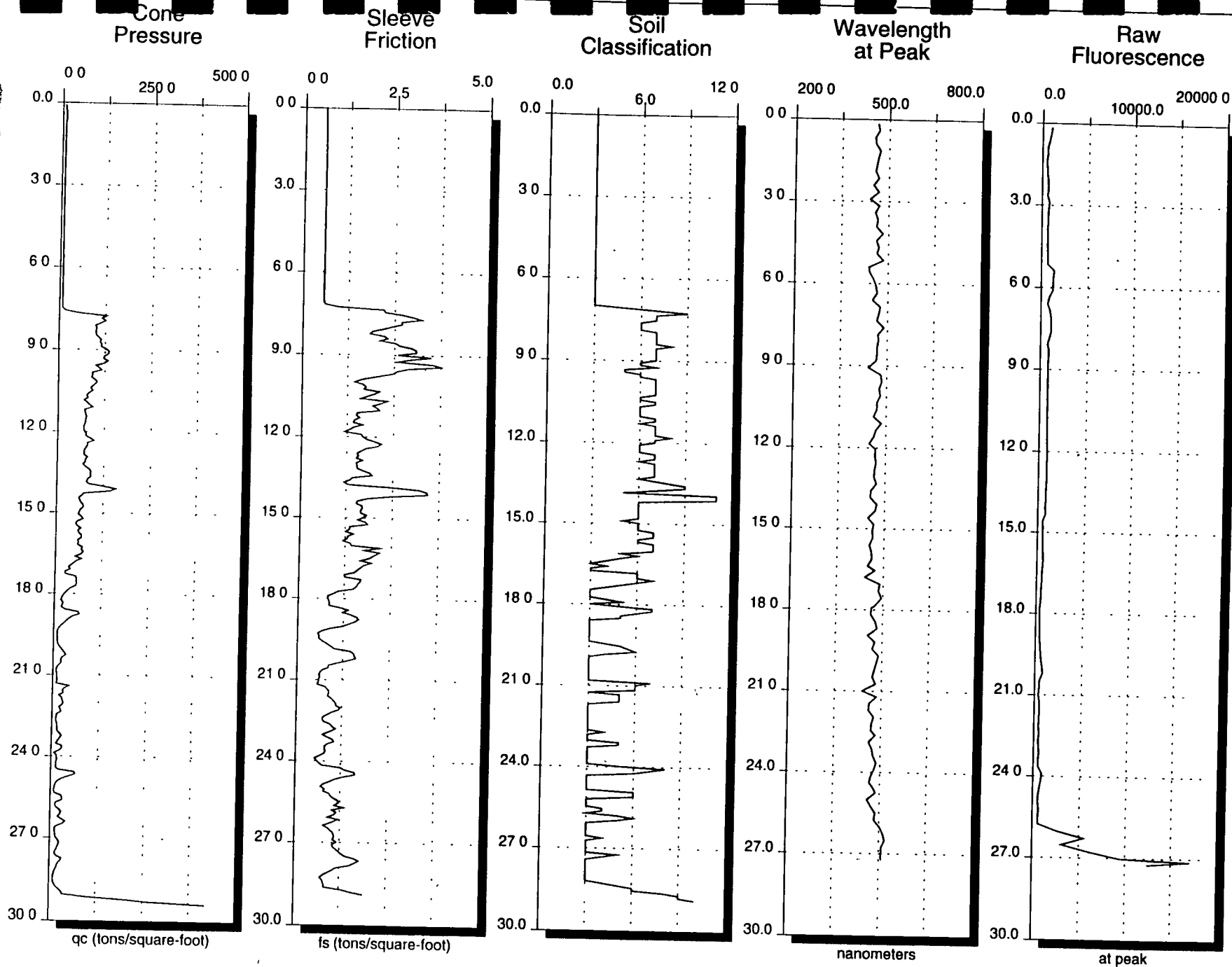
Time: 15:30:01
Date: 09-10-1995
Version: 1.0

Push: C:\BASIC71\DATA\DR05.PSH
Probe: C:\BASIC71\DATA\PROBE14D.PRB
Calibration: C:\BASIC71\DATA\SEP10DFM.CAL



Time: 16:15:32
Date: 09-10-1995
Version: 1.0

Push: C:\BASIC71\DATA\DR06.PSH
Probe: C:\BASIC71\DATA\PROBE14D.PRB
Calibration: C:\BASIC71\DATA\SEP10DFM.CAL

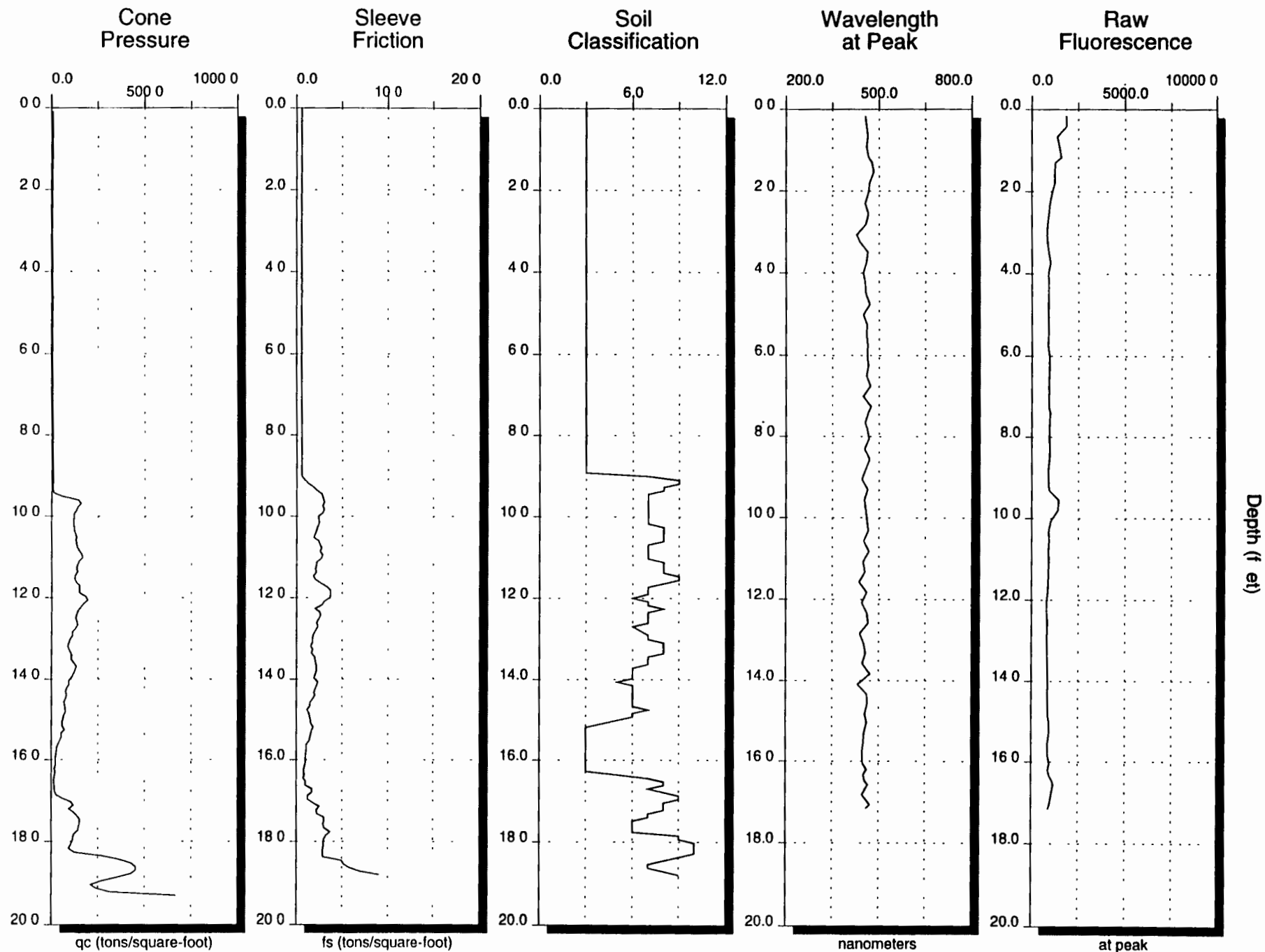


Time: 15:53:52

Date: 09-09-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK3801.PSH
Probe: C:\BASIC71\DATA\PROBE14D.PR8
Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 17:00:42

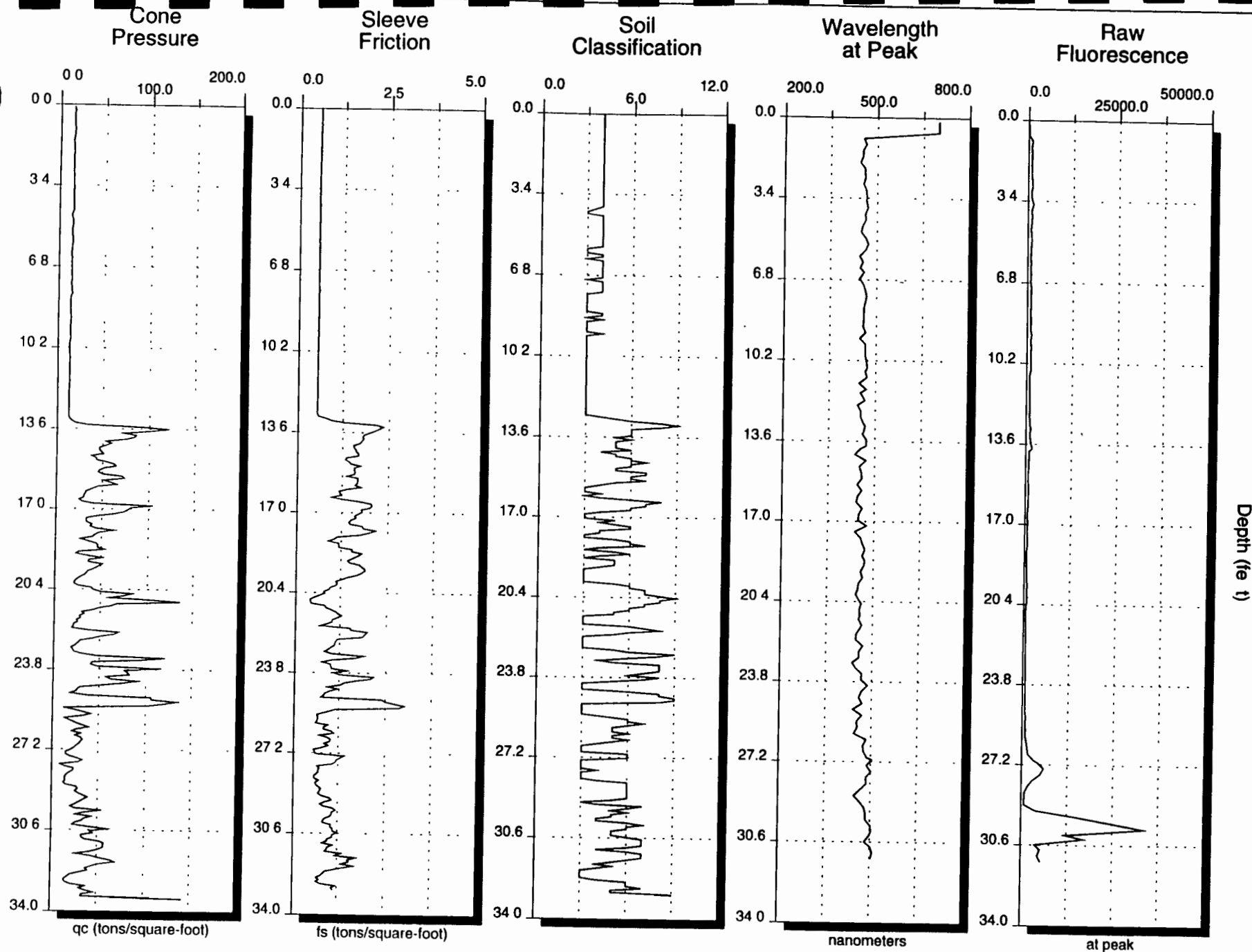
Date: 09-09-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK3802.PSH

Probe: C:\BASIC71\DATA\PROBE14D.PR

Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 18:06:04

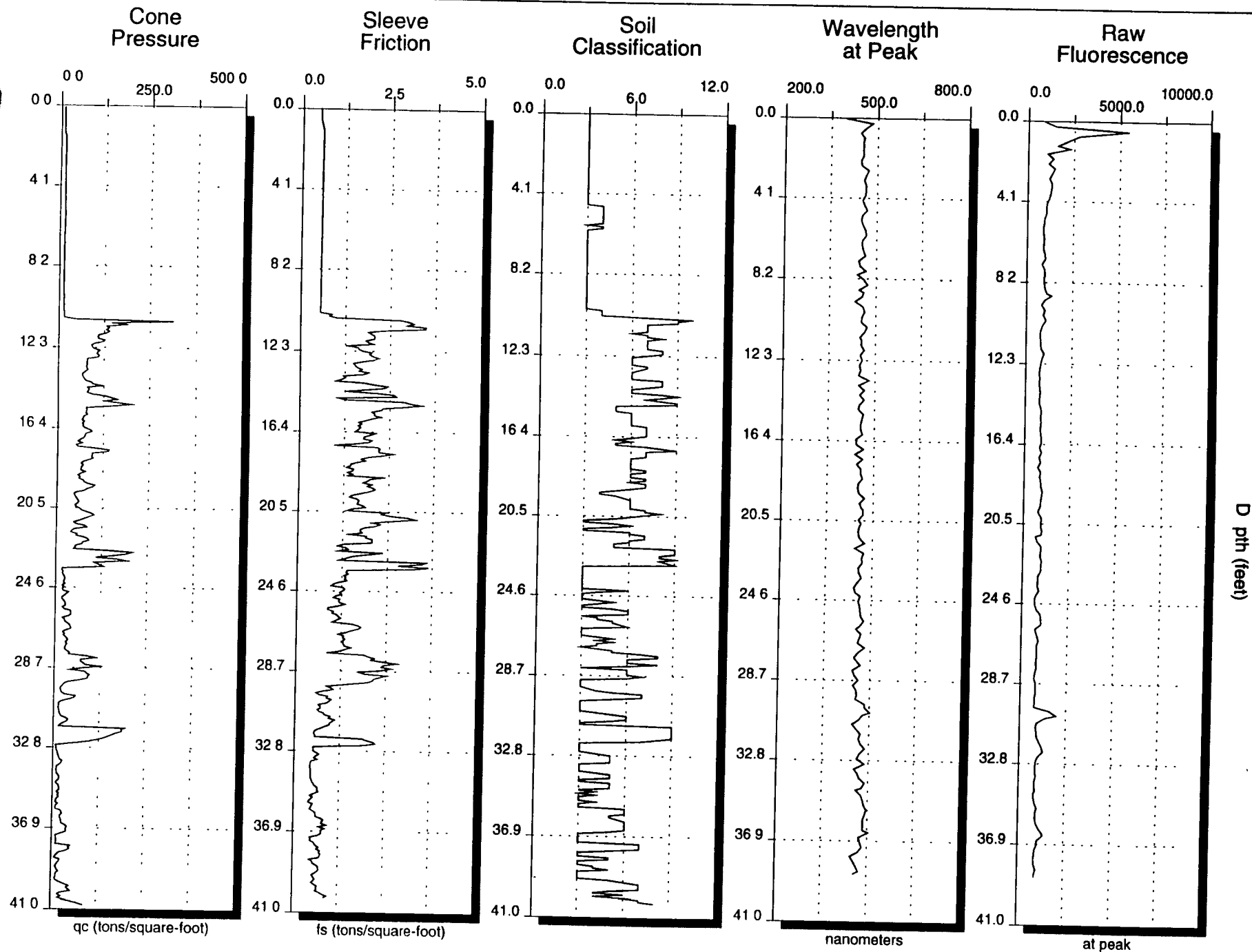
Date: 09-09-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK3803.PSH

Probe: C:\BASIC71\DATA\PROBE14D.PR8

Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 19:11:22

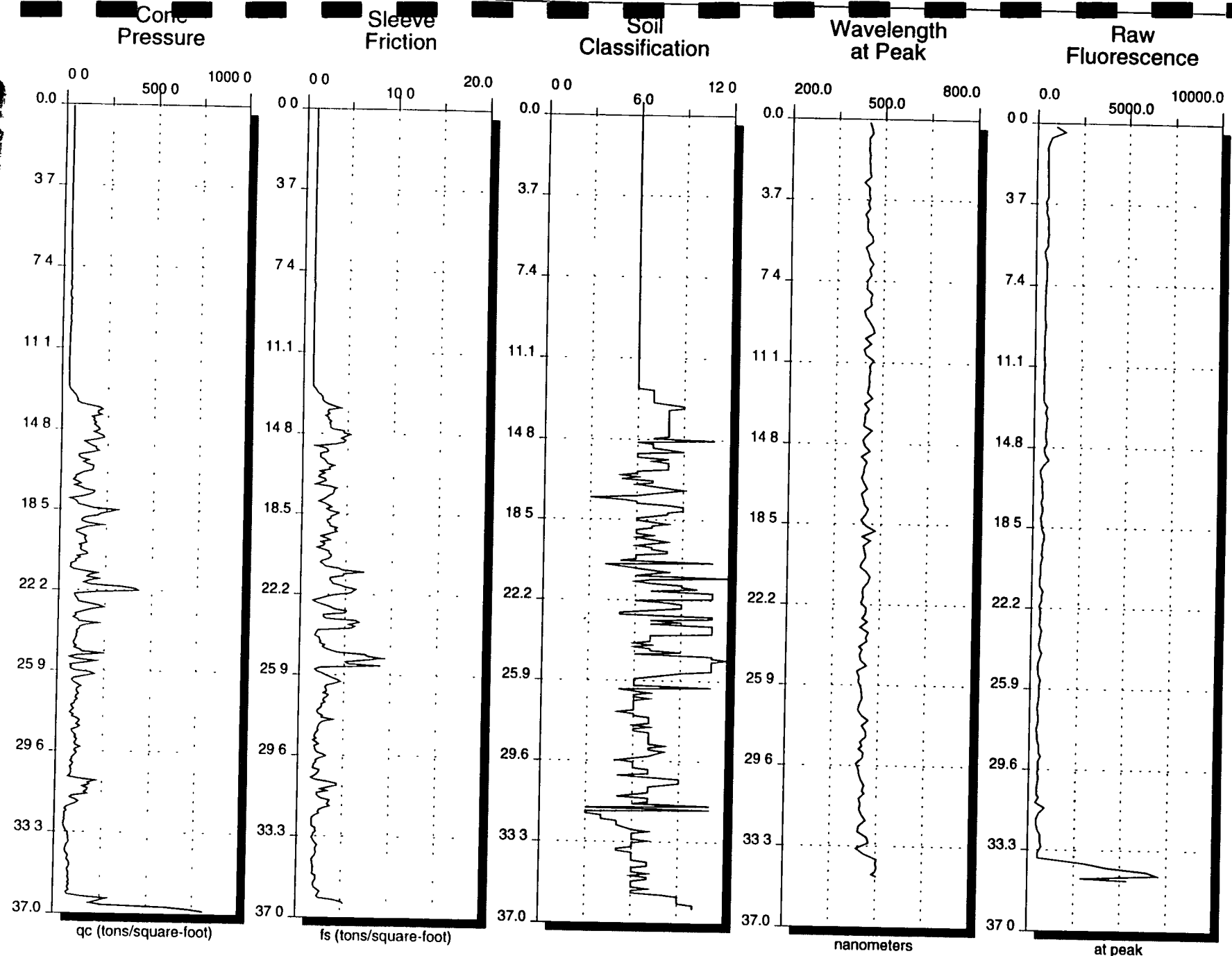
Date: 09-09-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK3804.PSH

Probe: C:\BASIC71\DATA\PROBE14D.PR

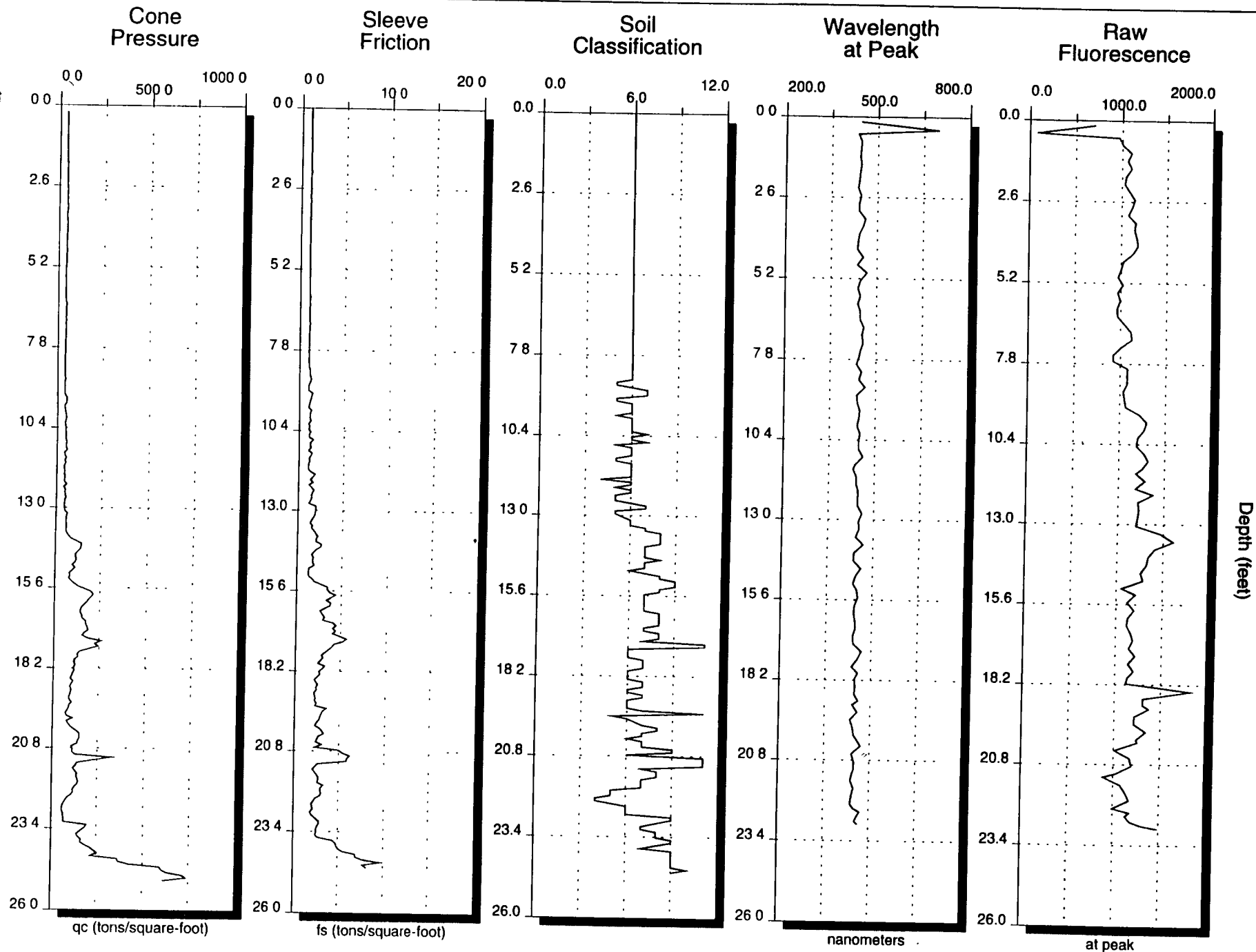
Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Depth (ft)

Time: 16:17:06
Date: 09-06-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK4201.PSH
Probe: C:\BASIC71\DATA\PROBE14C.PR
Calibration: C:\BASIC71\DATA\SEP06DFM.CAL



Time: 07:55:37

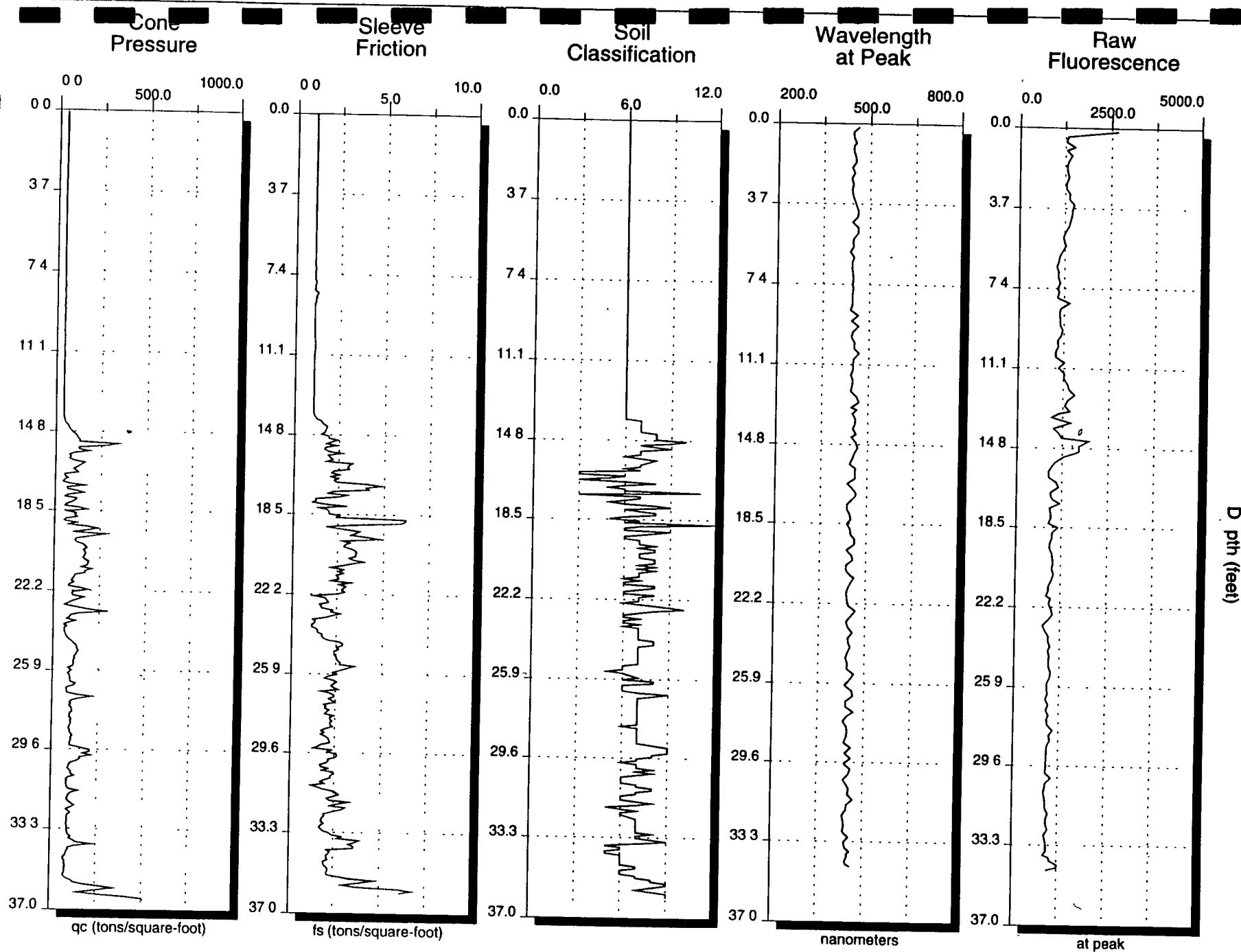
Date: 09-07-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4202.PSH

Probe: C:\BASIC71\DATA\PROBE14C.PRB

Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 09:01:25

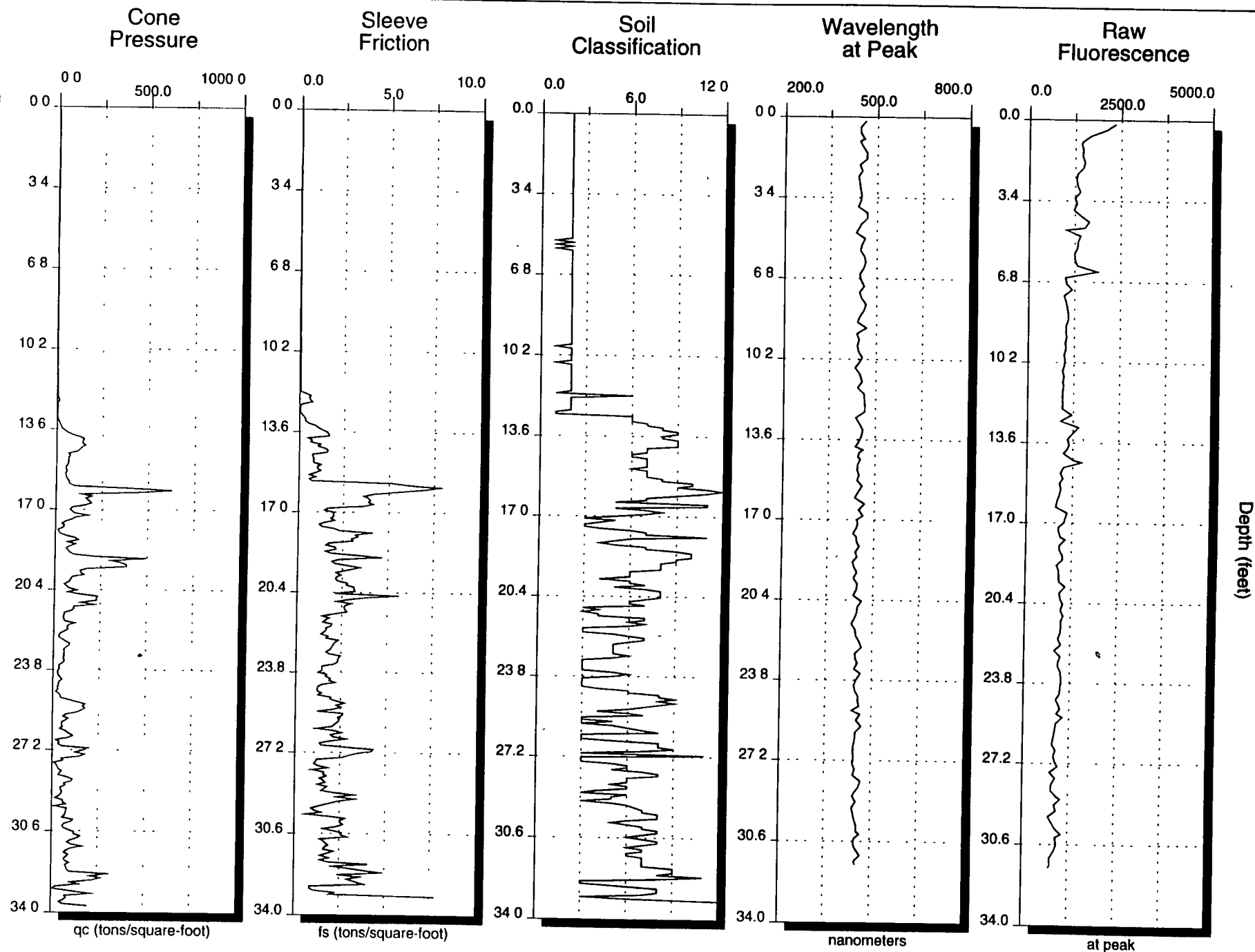
Date: 09-07-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4203.PSH

Probe: C:\BASIC71\DATA\PROBE14D.PR8

Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 10:46:33

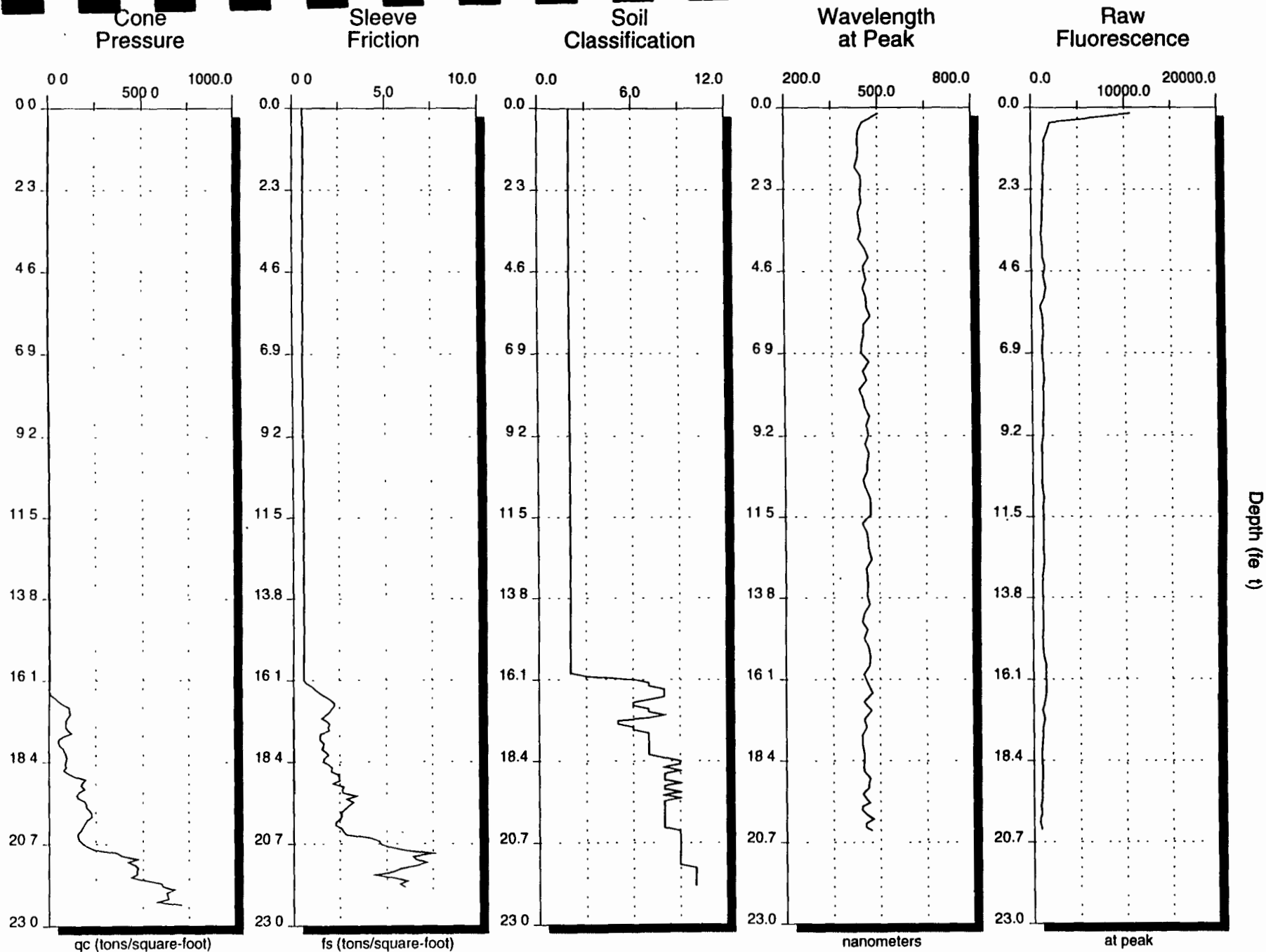
Date: 09-07-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4204.PSH

Probe: C:\BASIC71\DATA\PROBE14D.PR

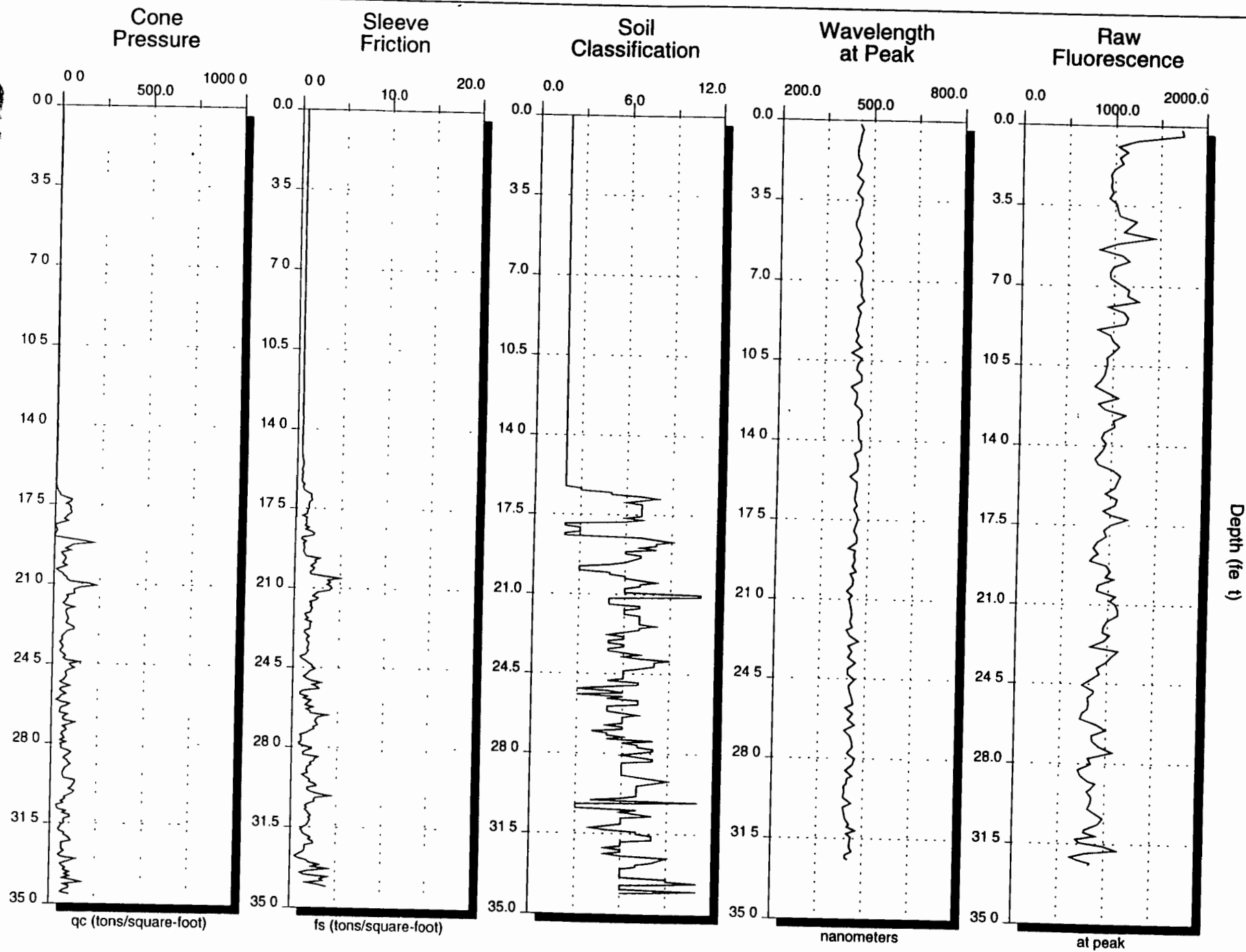
Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Depth (feet)

Time: 13:15:03
Date: 09-07-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK4205.PSH
Probe: C:\BASIC71\DATA\PROBE14D.PR8
Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 14:02:03

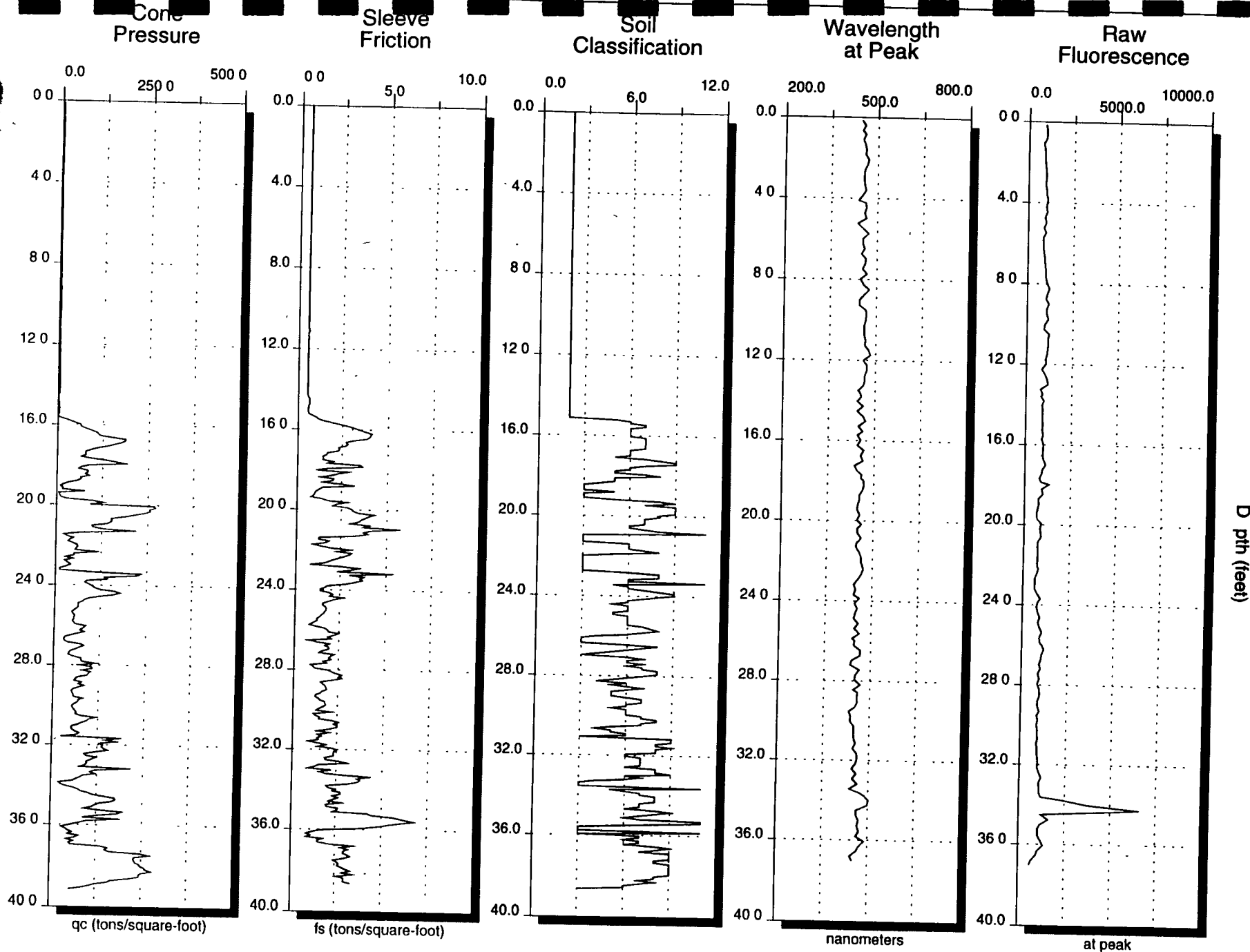
Date: 09-07-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4206.PSH

Probe: C:\BASIC71\DATA\PROBE14D.PR

Calibration: C:\BASIC71\DATA\PROBE14D.CAL



Time: 16:47:25

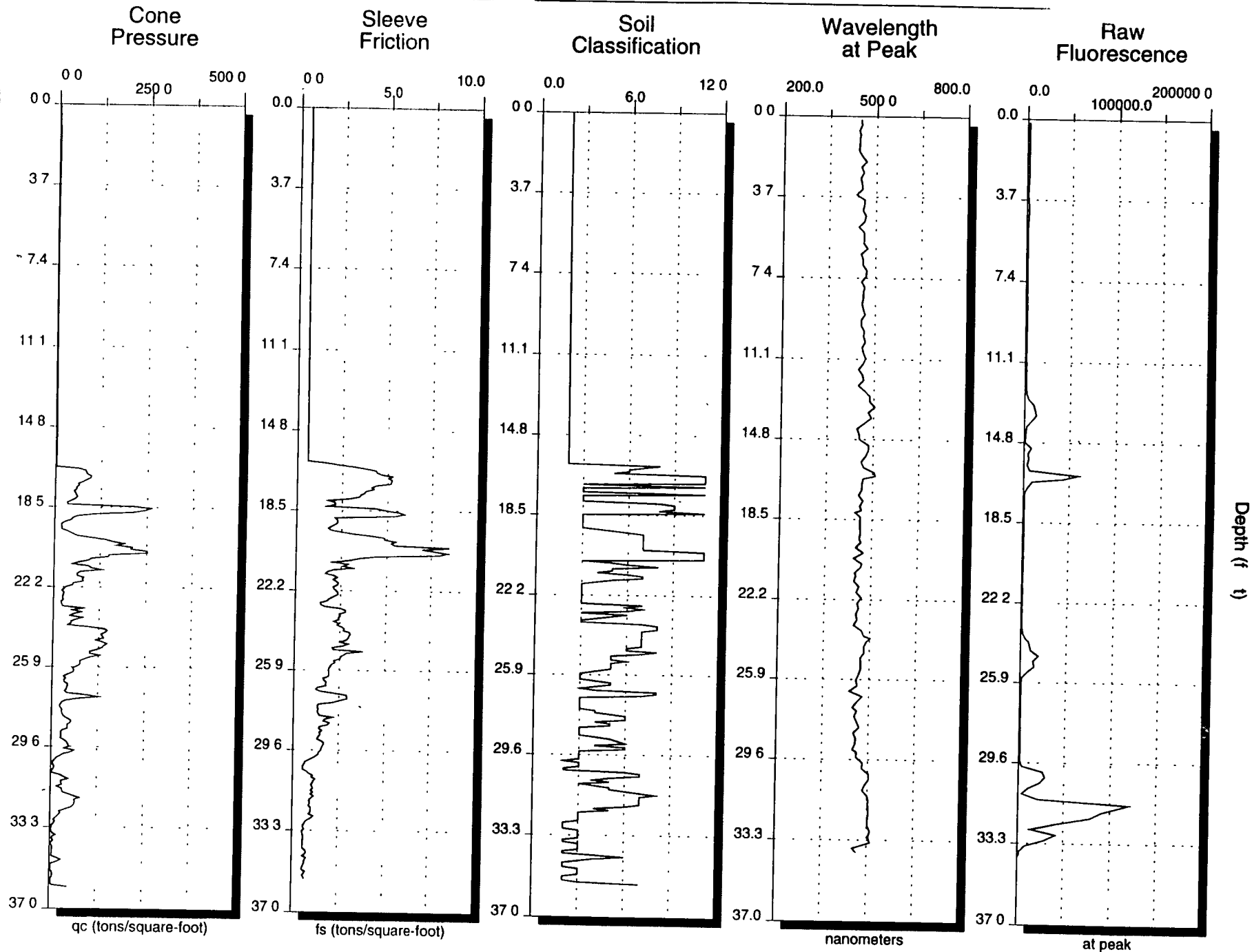
Date: 09-07-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4207.PSH

Probe: C:\BASIC71\DATA\PROBE14D.PR8

Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 10:16:03

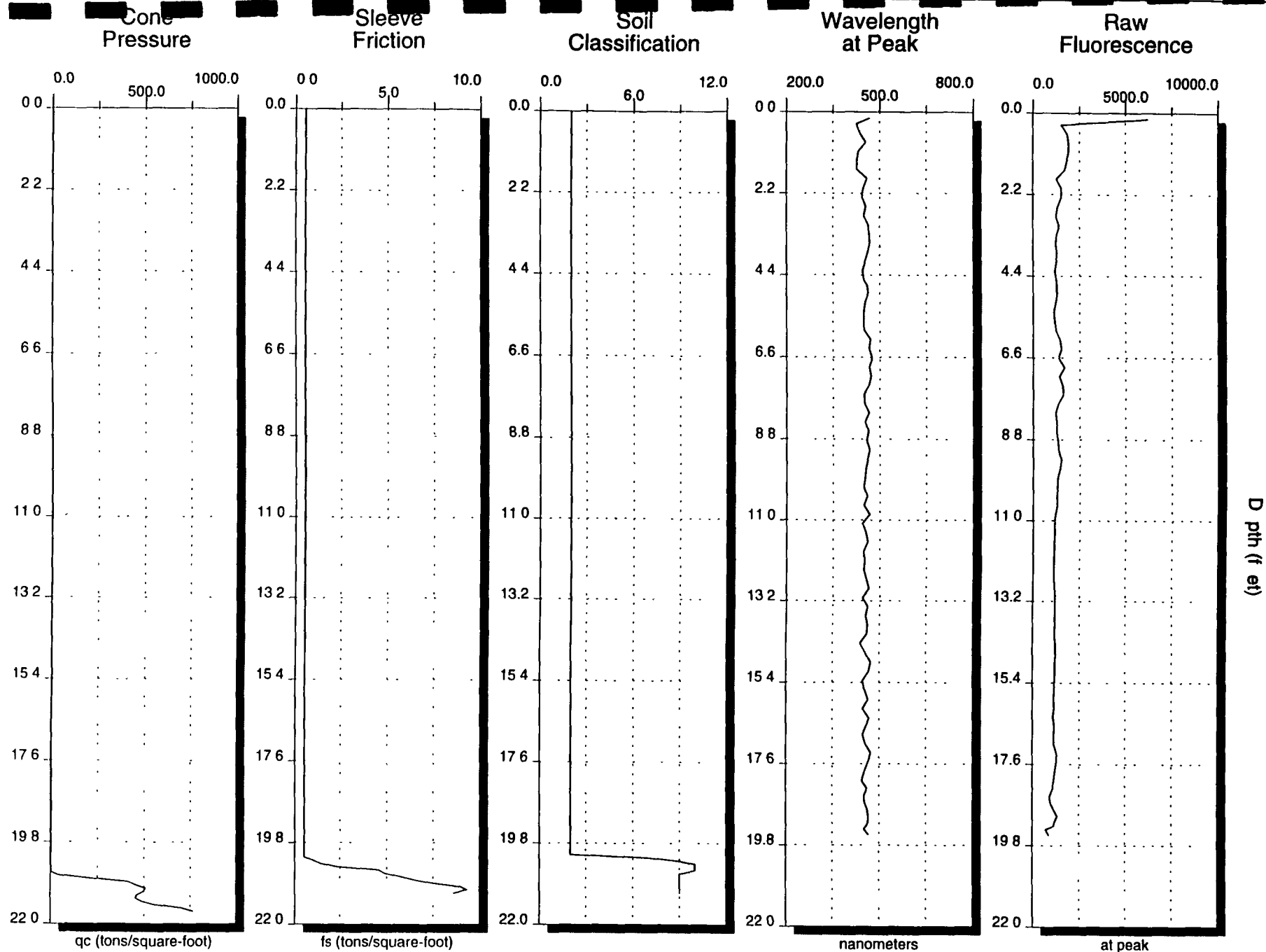
Date: 09-08-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4501.PSH

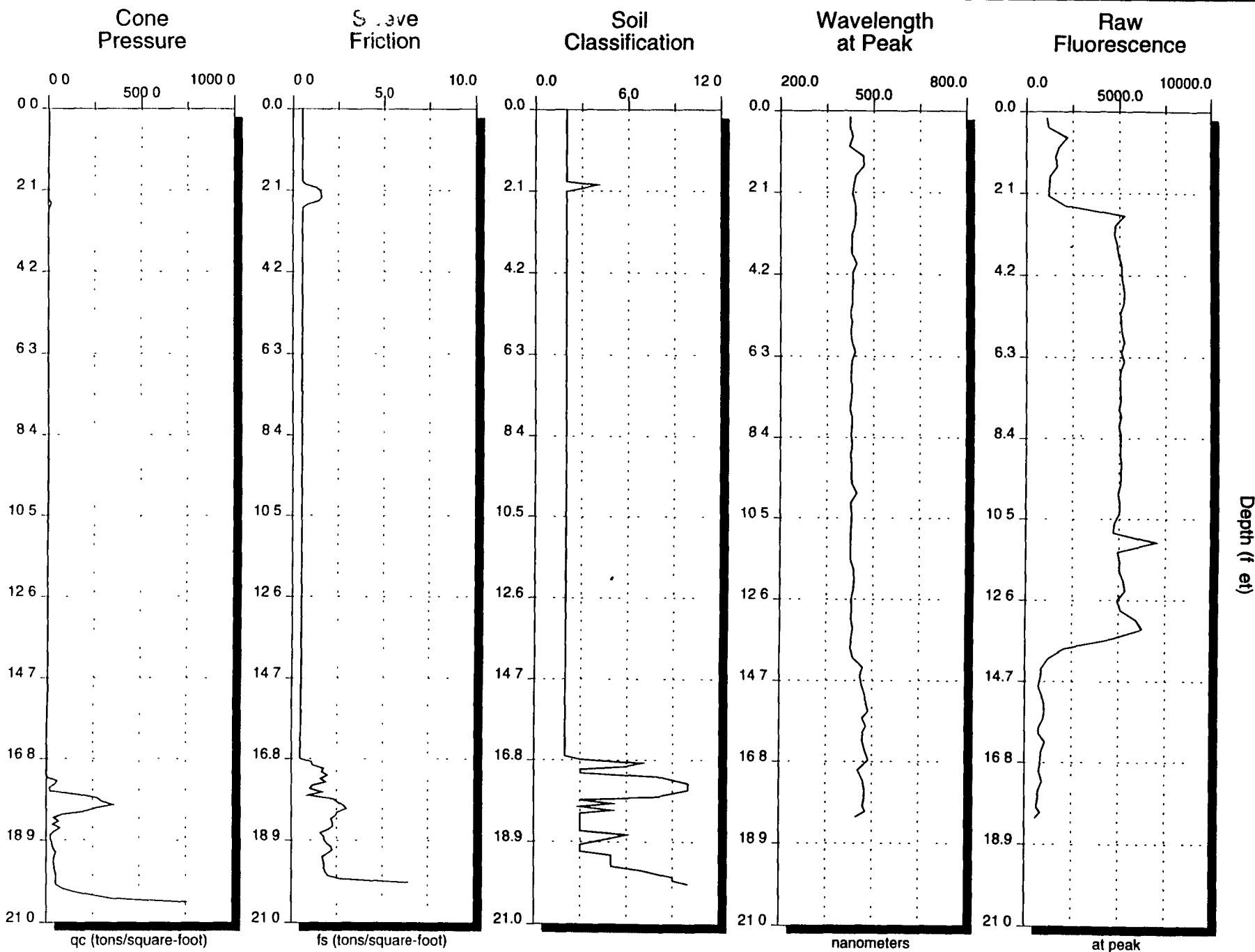
Probe: C:\BASIC71\DATA\PROBE14D.PR8

Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 13:41:38
Date: 09-08-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK4502.PSH
Probe: C:\BASIC71\DATA\PROBE14D.PR8
Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Depth (ft)

Time: 14:44:06

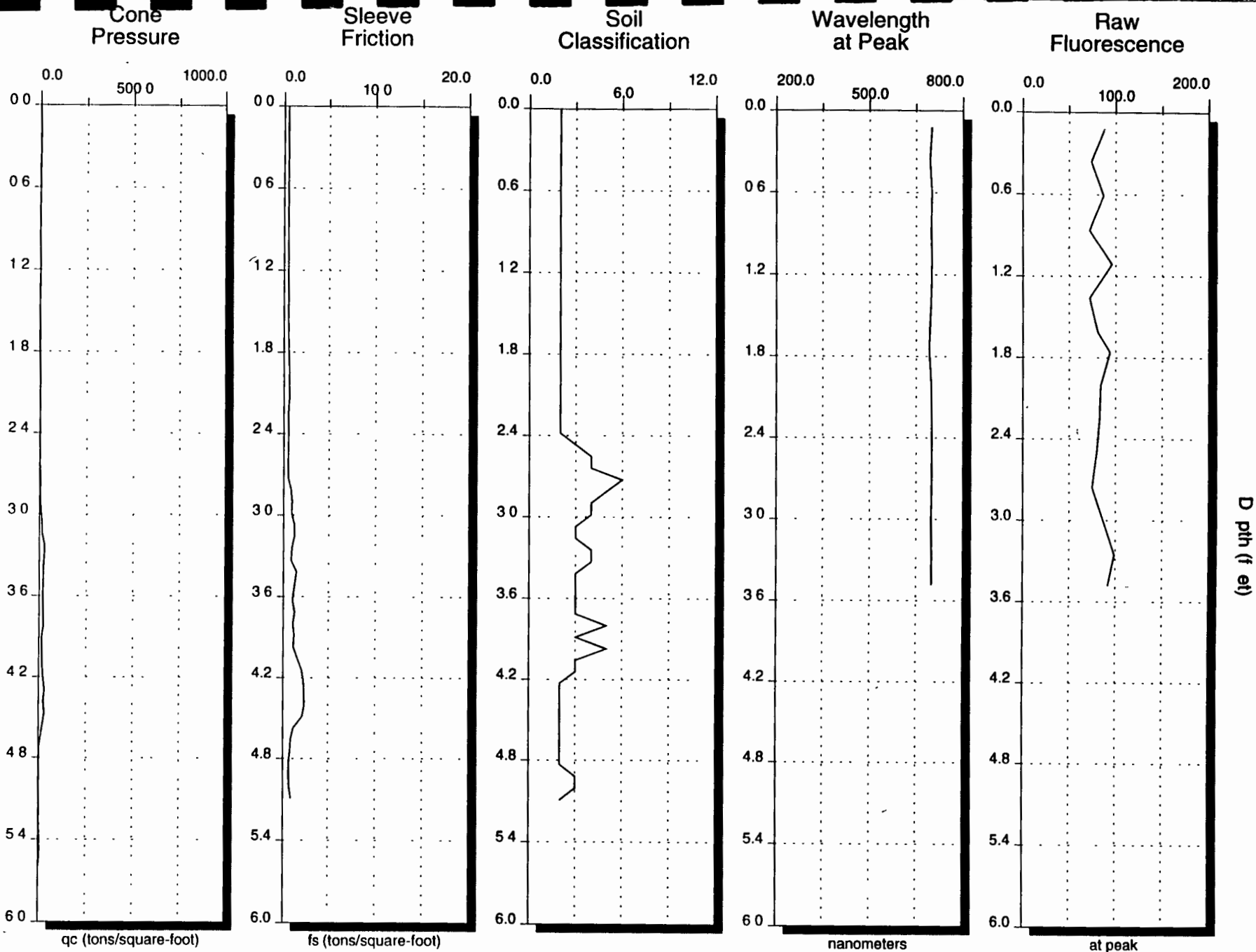
Date: 09-08-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4503.PSH

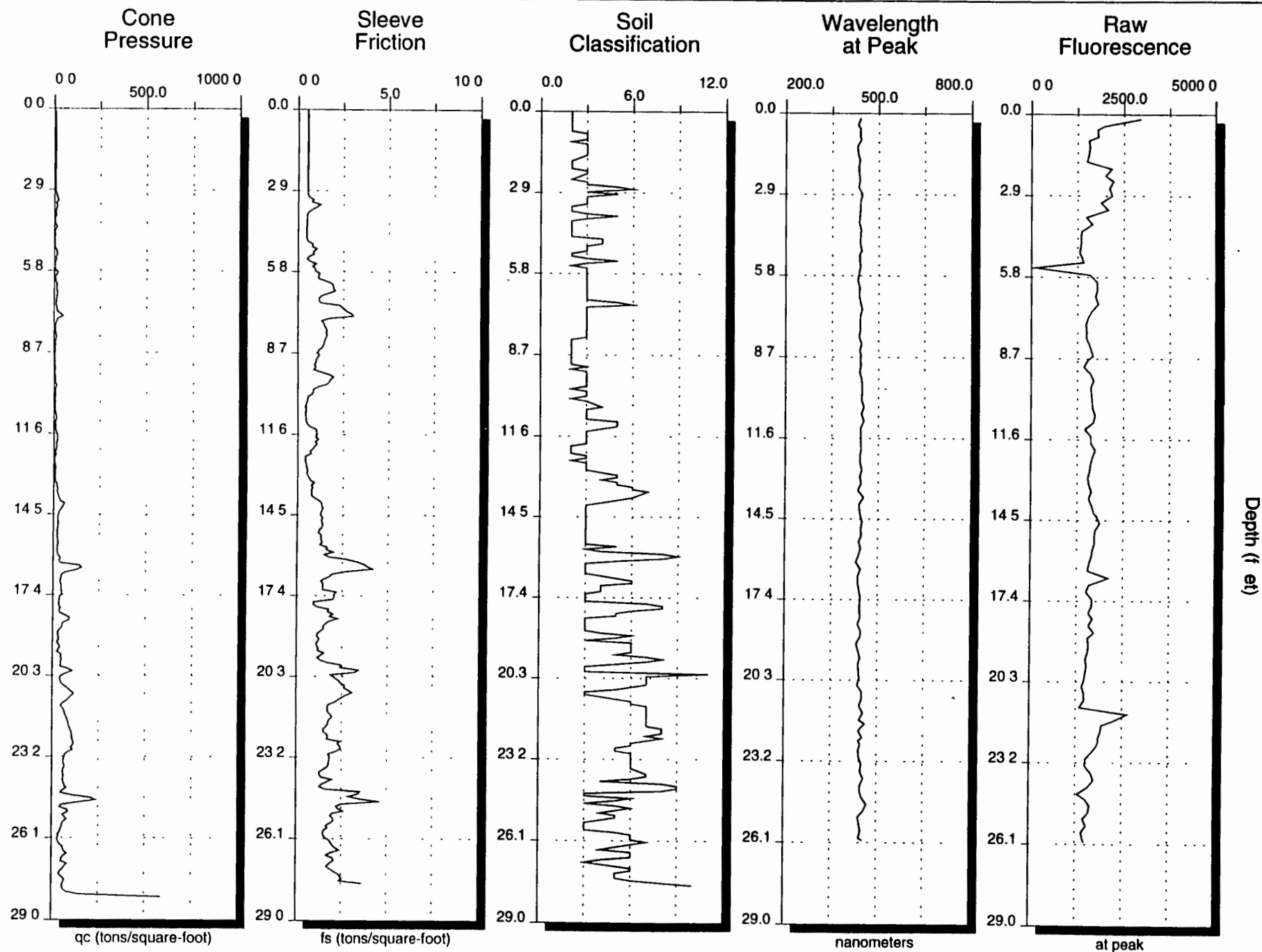
Probe: C:\BASIC71\DATA\PROBE14D.PR

Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 15:46:57
Date: 09-08-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK4504.PSH
Probe: C:\BASIC71\DATA\PROBE14D.PR
Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 16:48:04

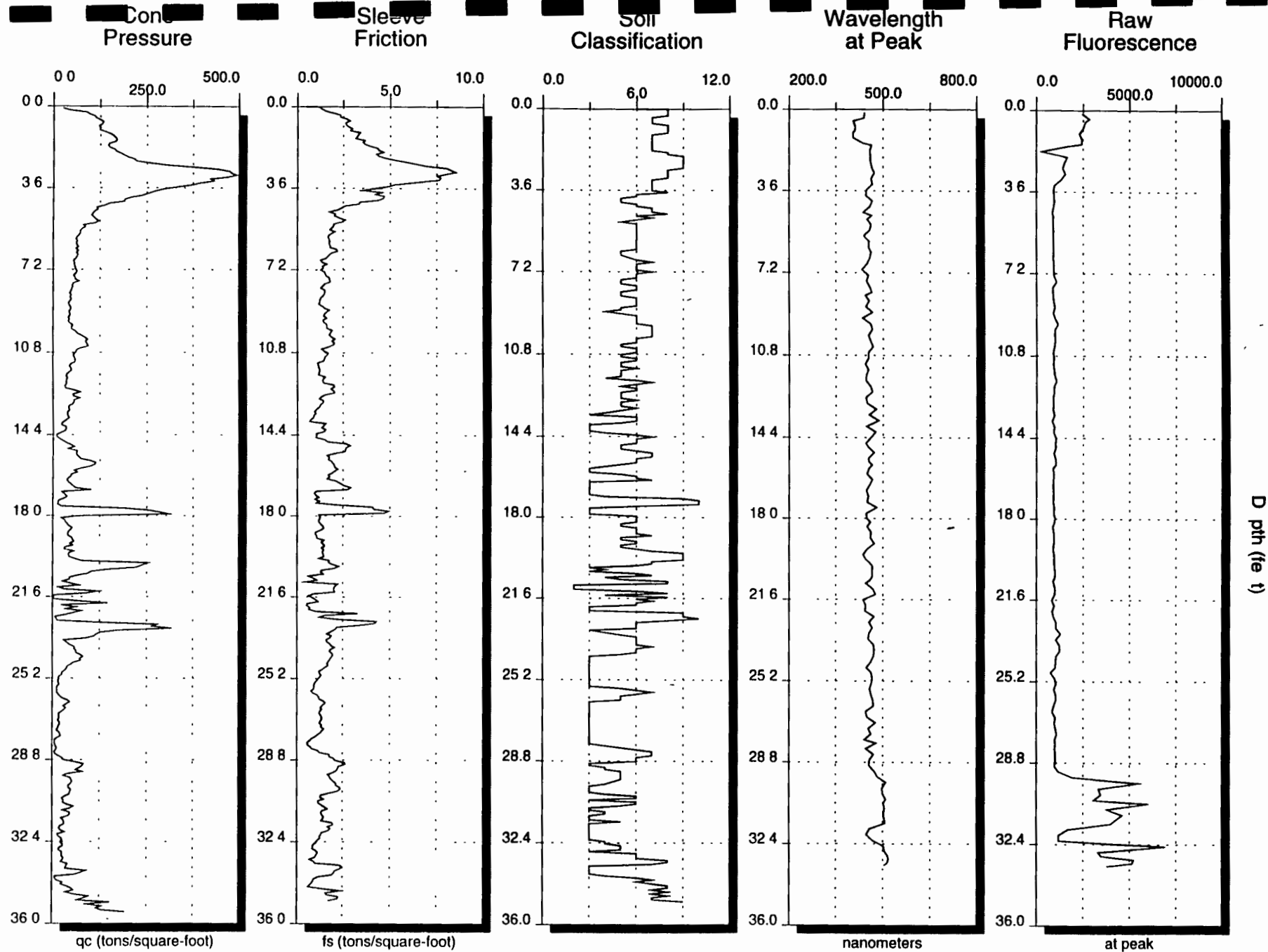
Date: 09-08-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4505.PSH

Probe: C:\BASIC71\DATA\PROBE14D.PR8

Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 17:26:52

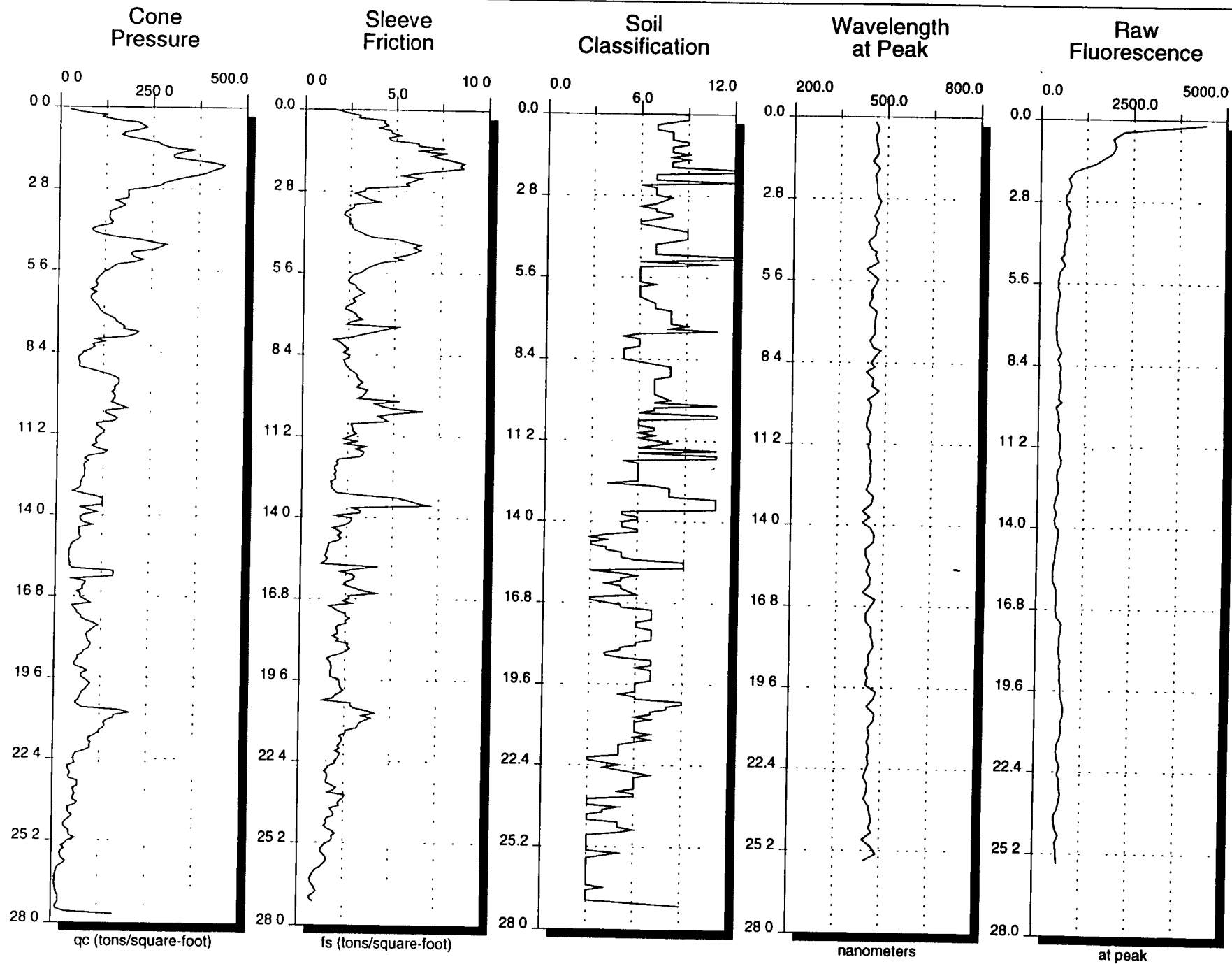
Date: 09-08-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4506.PSH

Probe: C:\BASIC71\DATA\PROBE14D.PR8

Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 18:11:23

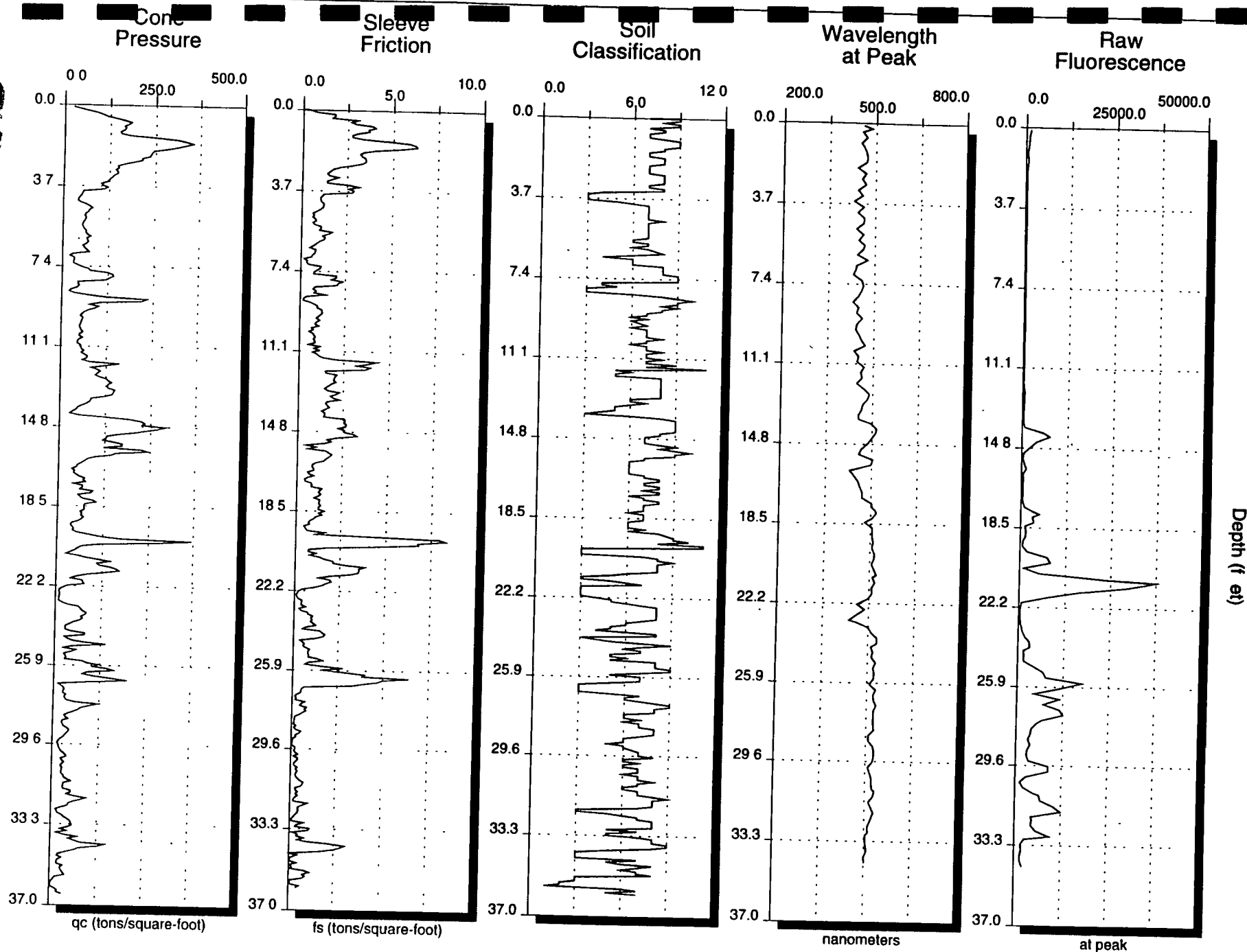
Date: 09-08-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4507.PSH

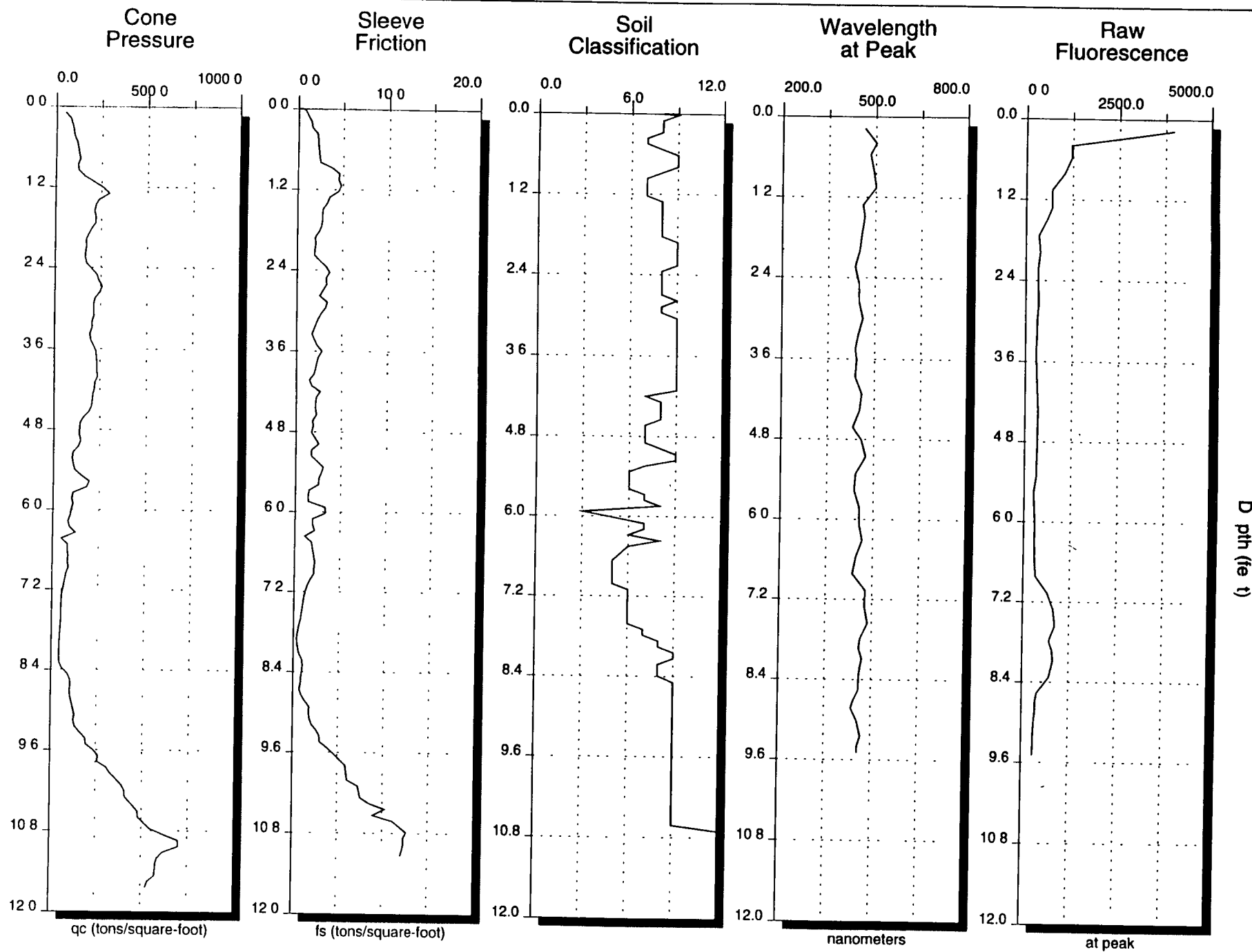
Probe: C:\BASIC71\DATA\PROBE14D.PR8

Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 08:02:41
Date: 08-28-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK4801.PSH
Probe: C:\BASIC71\DATA\PROBE14C.PR
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 09:36:07

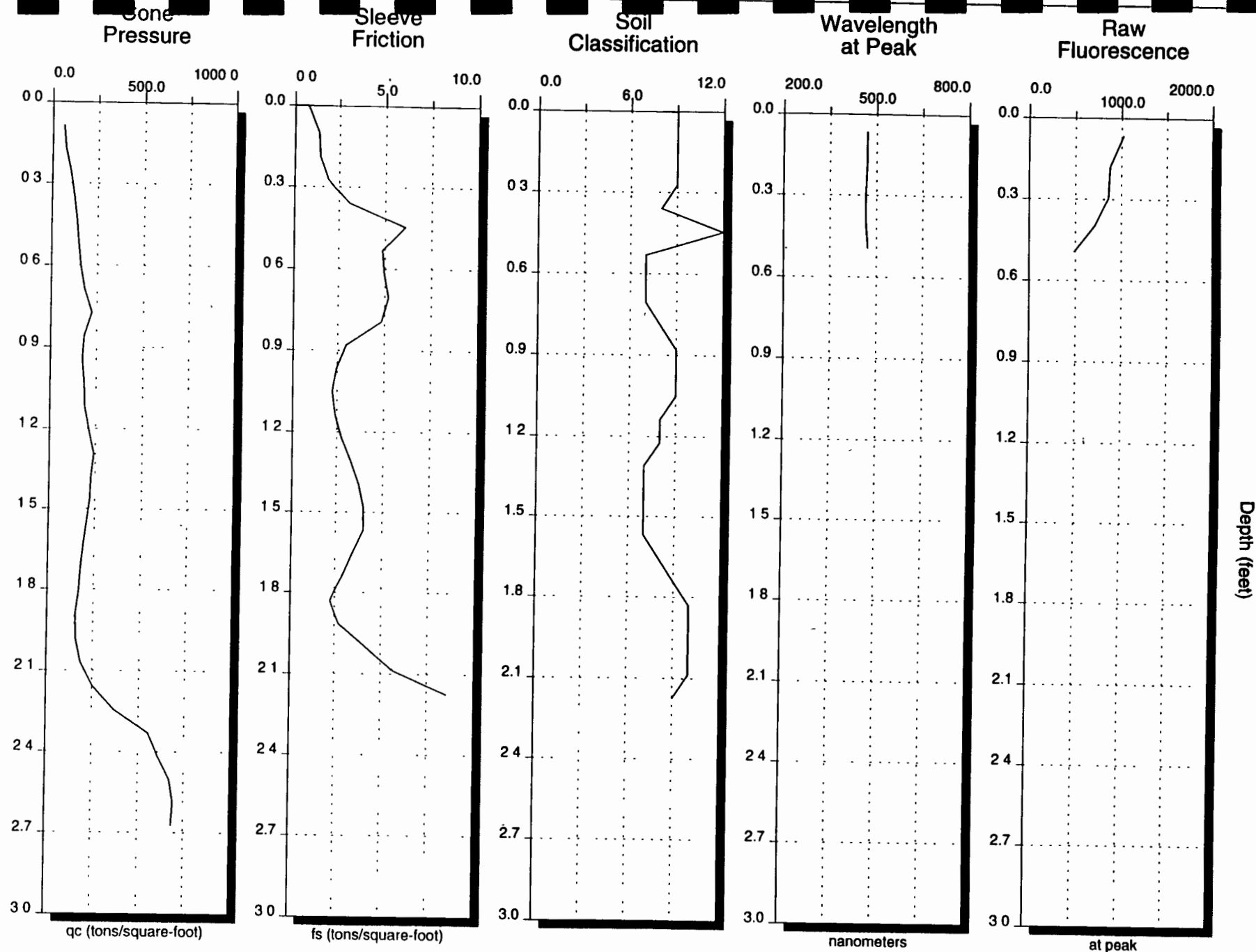
Date: 08-28-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4803.PSH

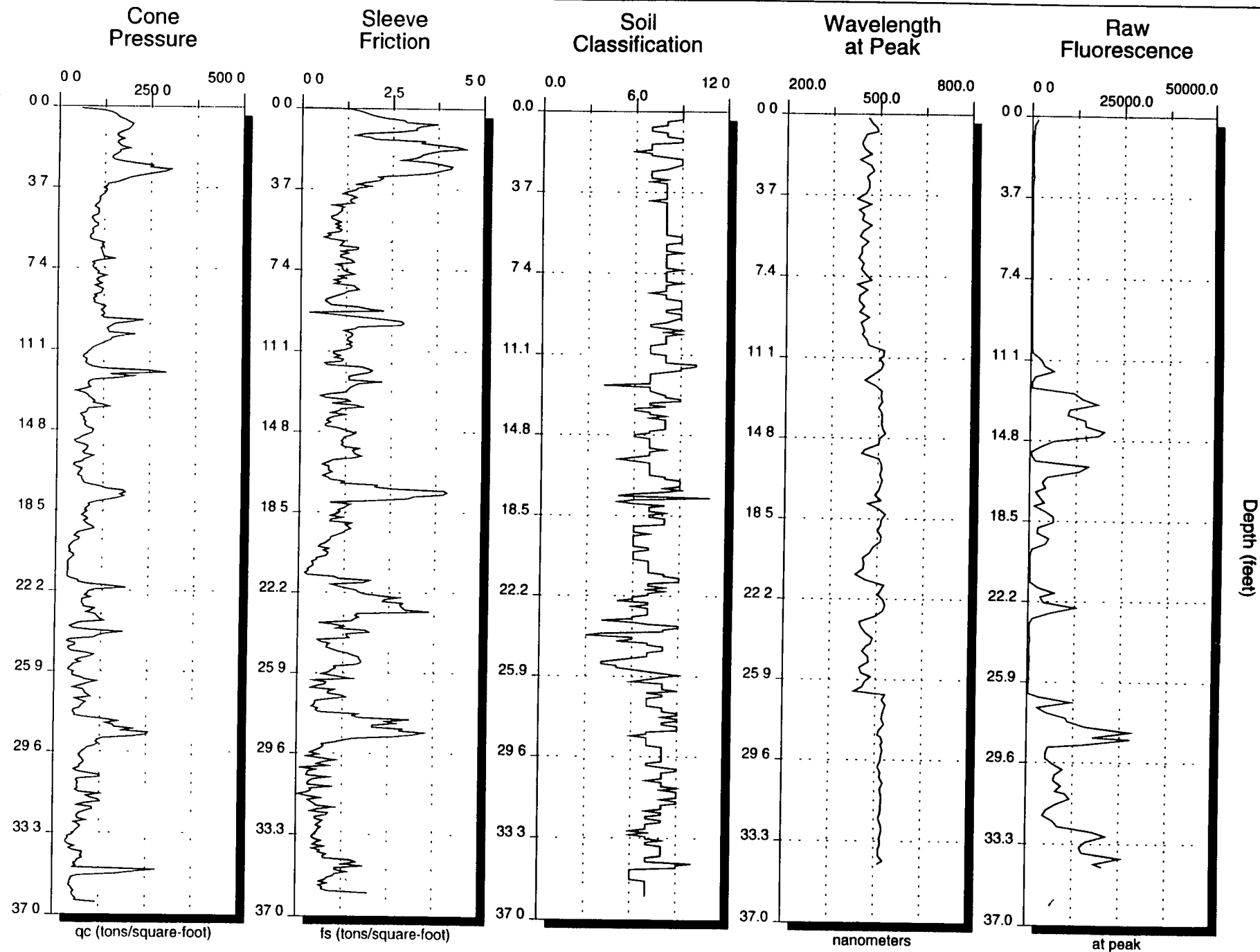
Probe: C:\BASIC71\DATA\PROBE14C.PR8

Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 08:58:50
Date: 08-28-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK4802.PSH
Probe: C:\BASIC71\DATA\PROBE14C.PR
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 10:27:34

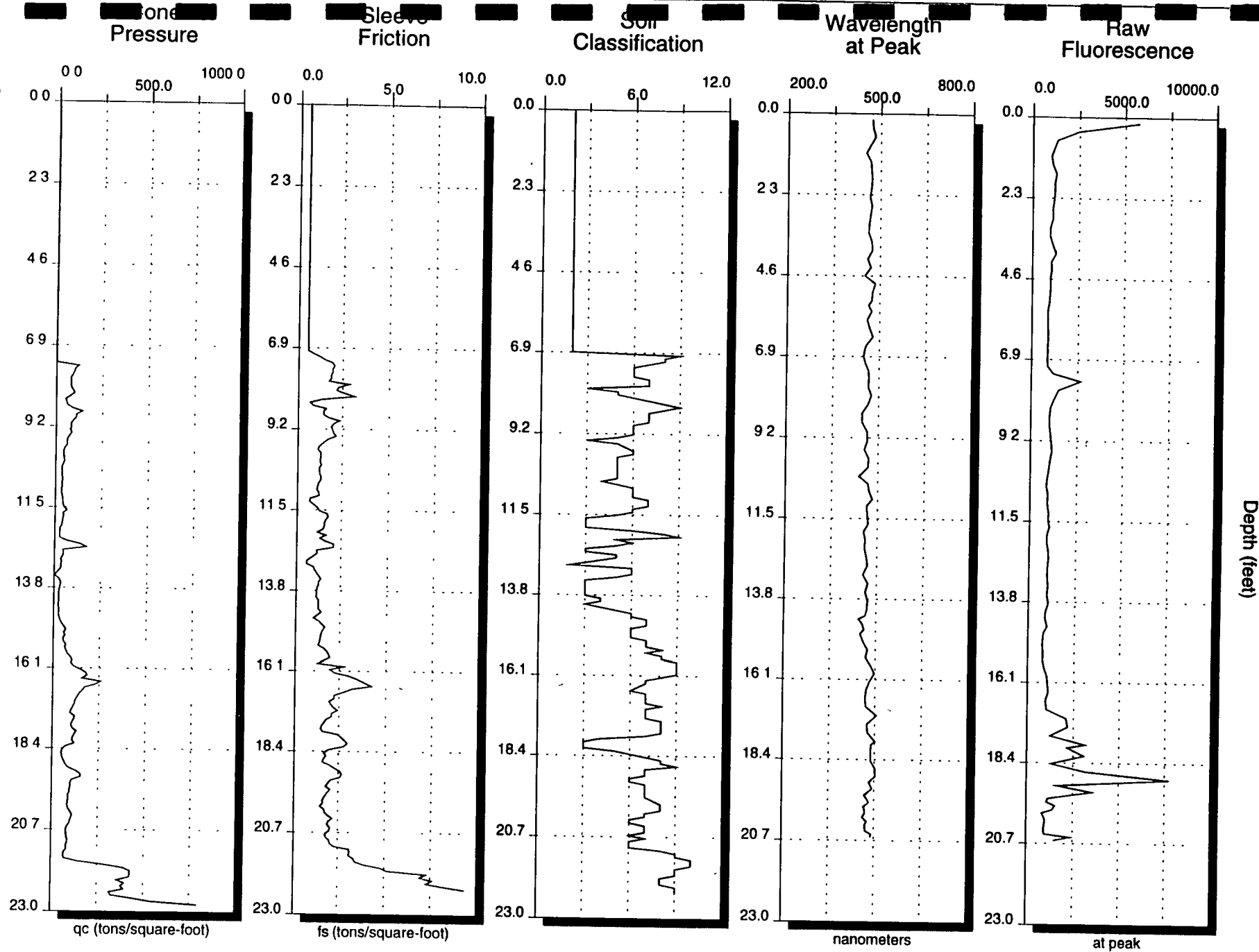
Date: 08-28-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4804.PSH

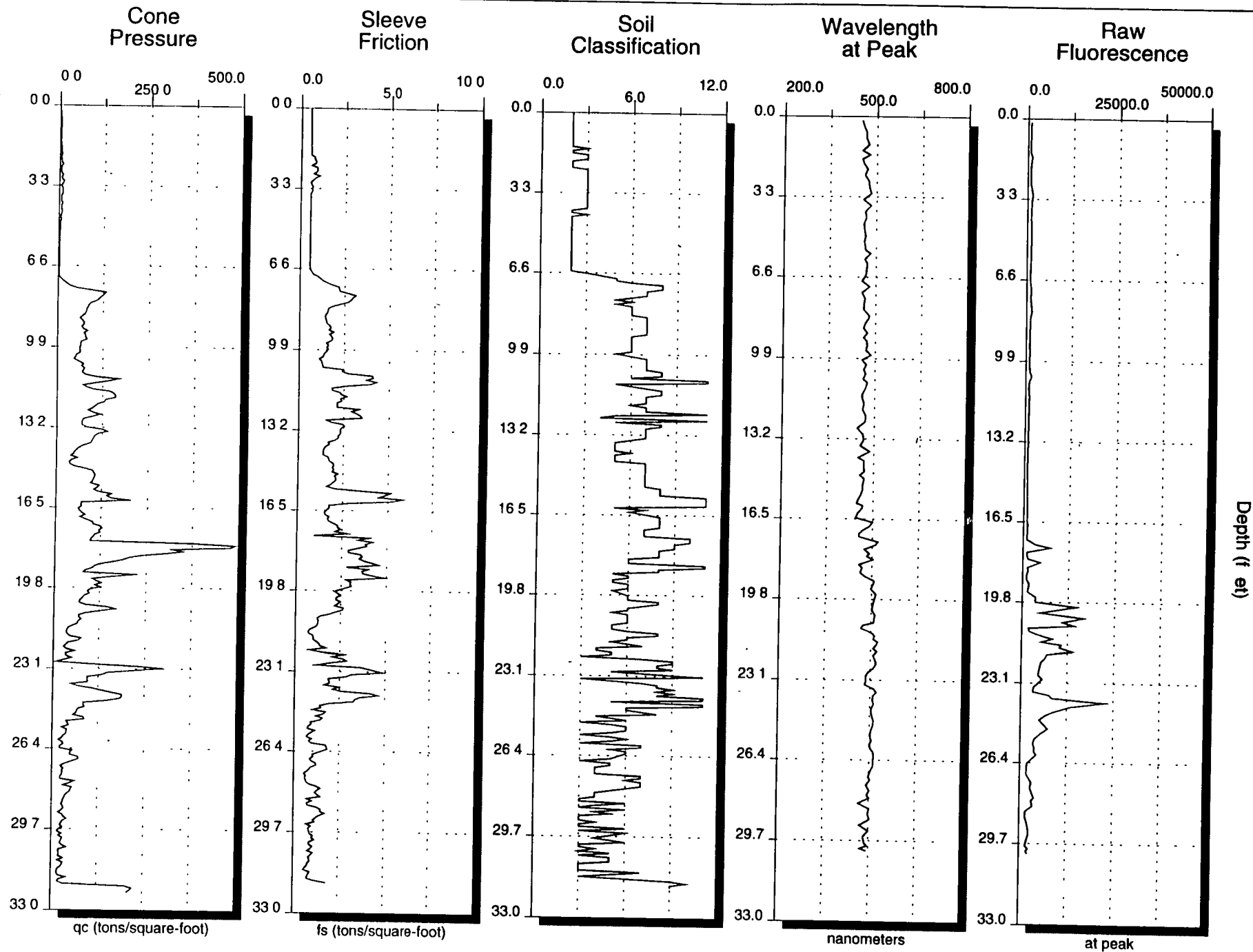
Probe: C:\BASIC71\DATA\PROBE14C.PRB

Calibration: C:\BASIC71\DATA\SEP05DFM.CAL



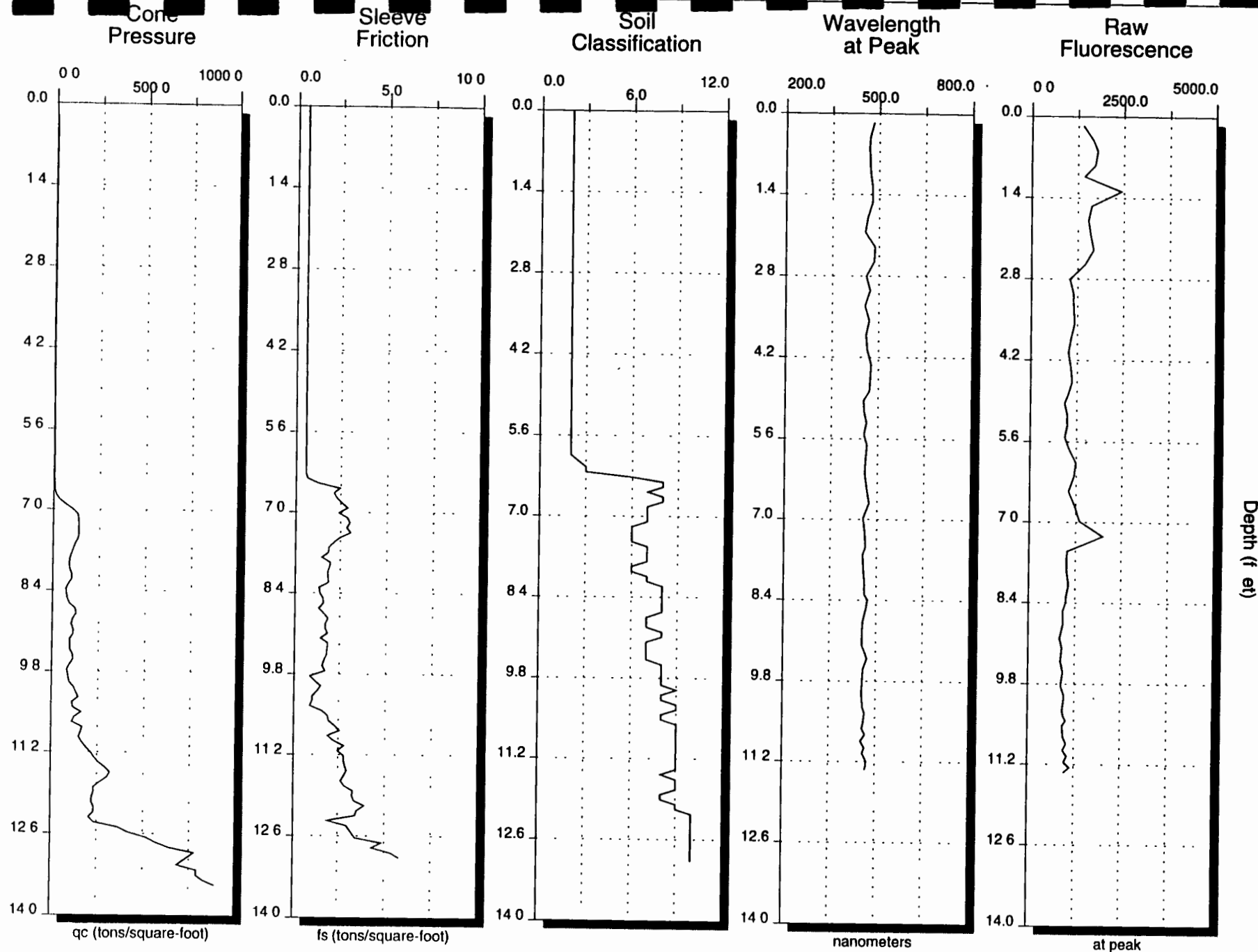
Time: 07:22:42
Date: 09-09-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK4805.PSH
Probe: C:\BASIC71\DATA\PROBE14D.PR8
Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



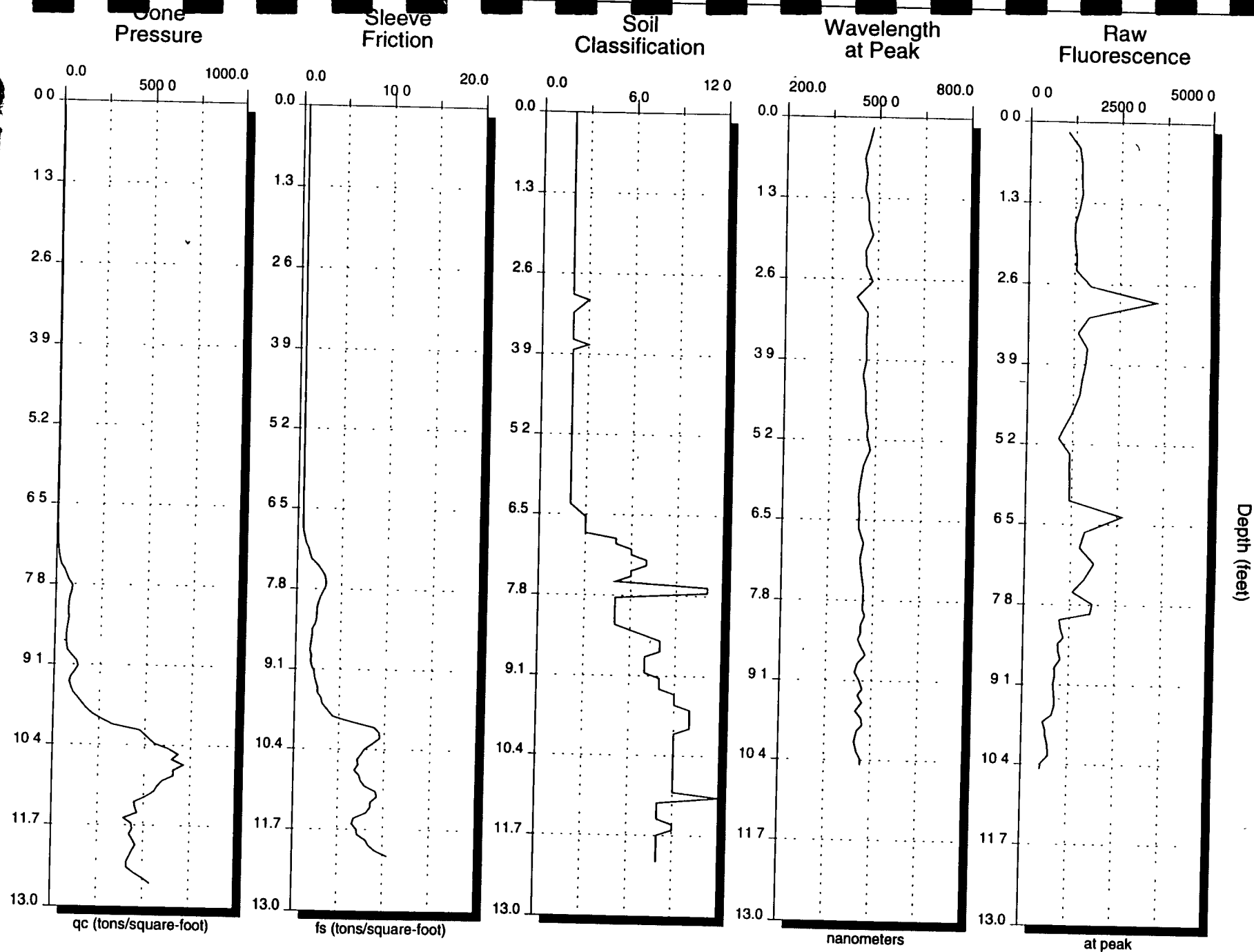
Time: 08:40:13
Date: 09-09-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK4806.PSH
Probe: C:\BASIC71\DATA\PROBE14D.PR8
Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 10:46:39
Date: 09-09-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK4807.PSH
Probe: C:\BASIC71\DATA\PROBE14D.PR
Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 13:46:02

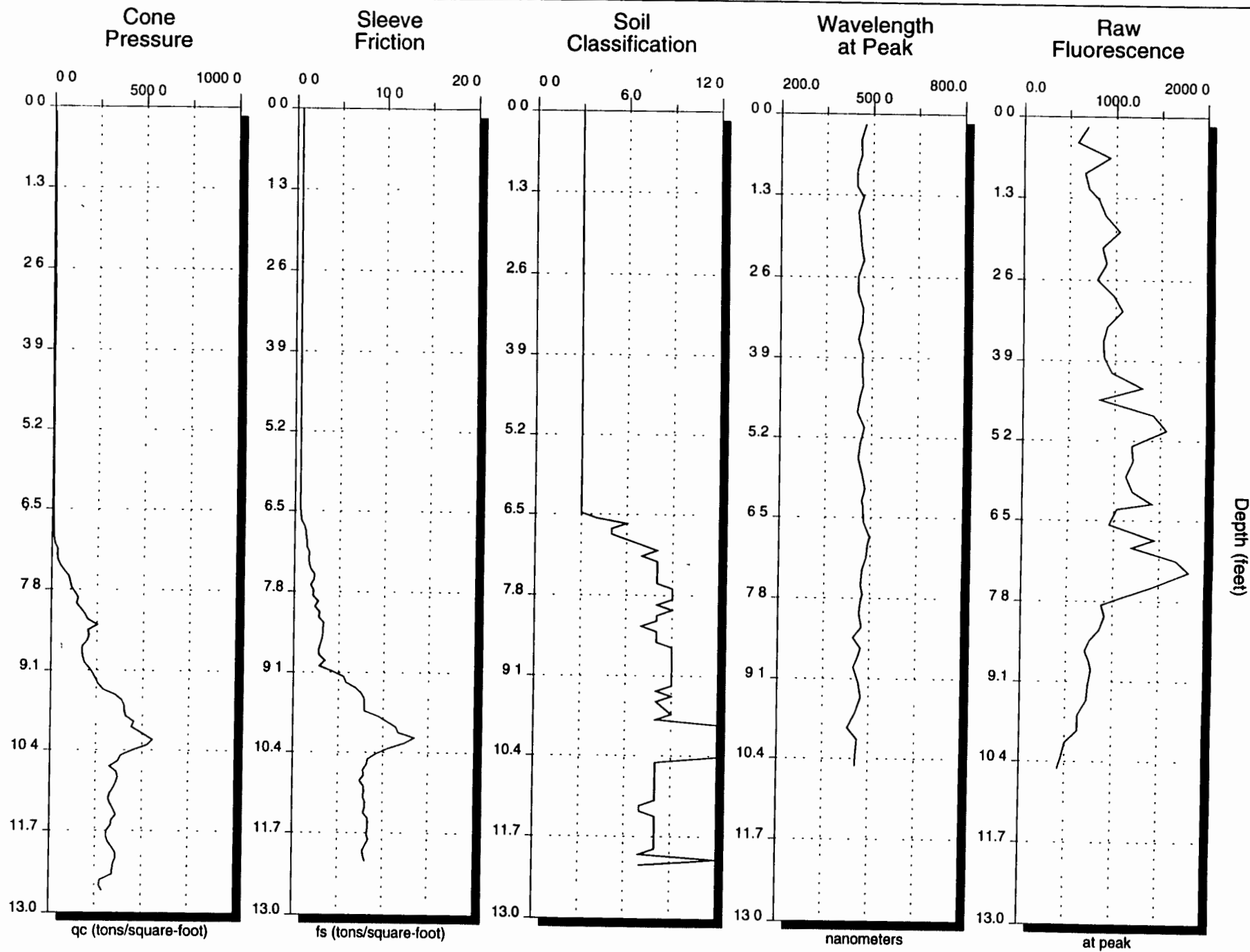
Date: 09-09-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4808.PSH

Probe: C:\BASIC71\DATA\PROBE14D.PR8

Calibration: C:\BASIC71\DATA\SEP07DFM.CAL



Time: 15:00:08

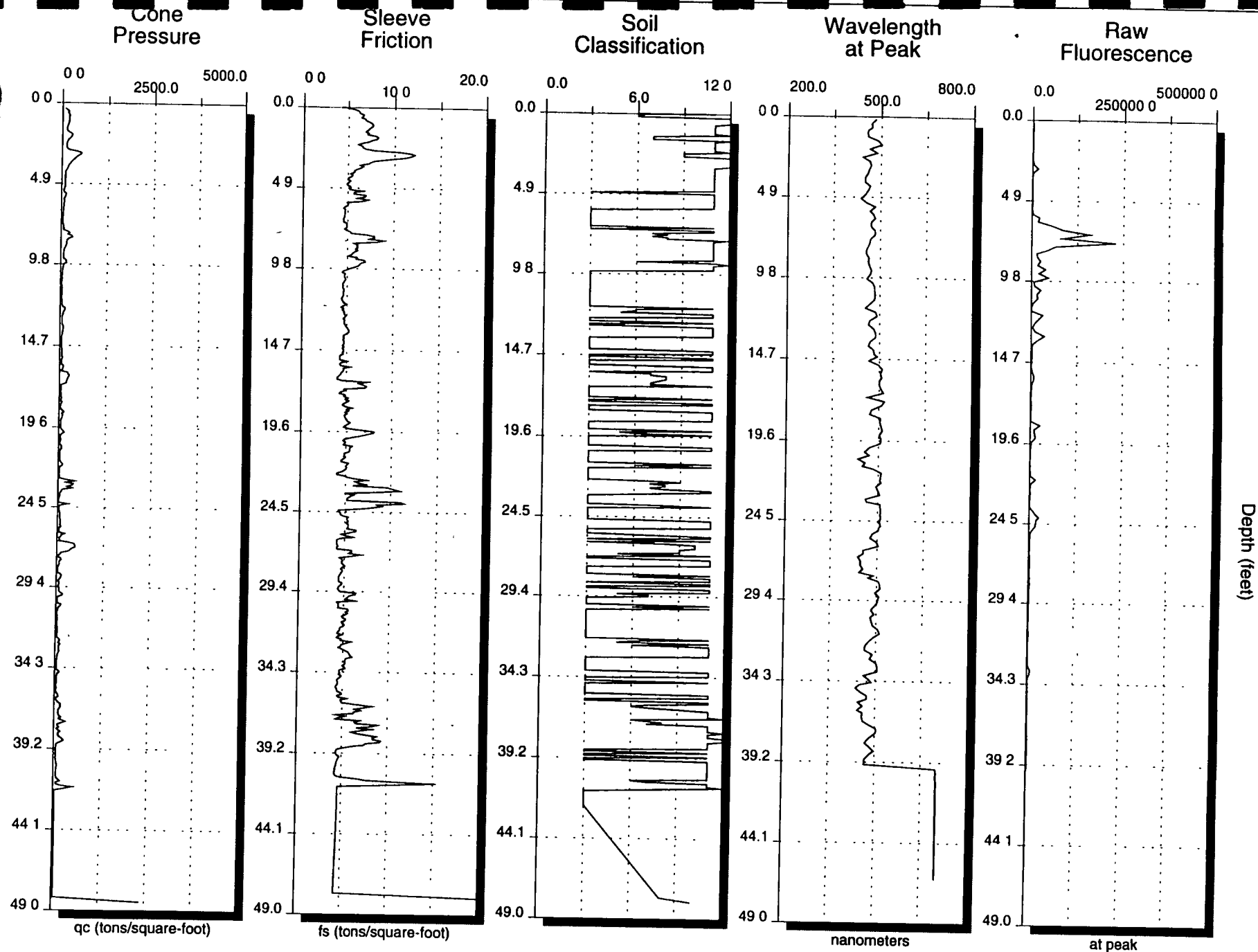
Date: 09-09-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK4809.PSH

Probe: C:\BASIC71\DATA\PROBE14D.PR

Calibration: C:\BASIC71\DATA\SEP07DEM.CAL



Time: 08:43:02

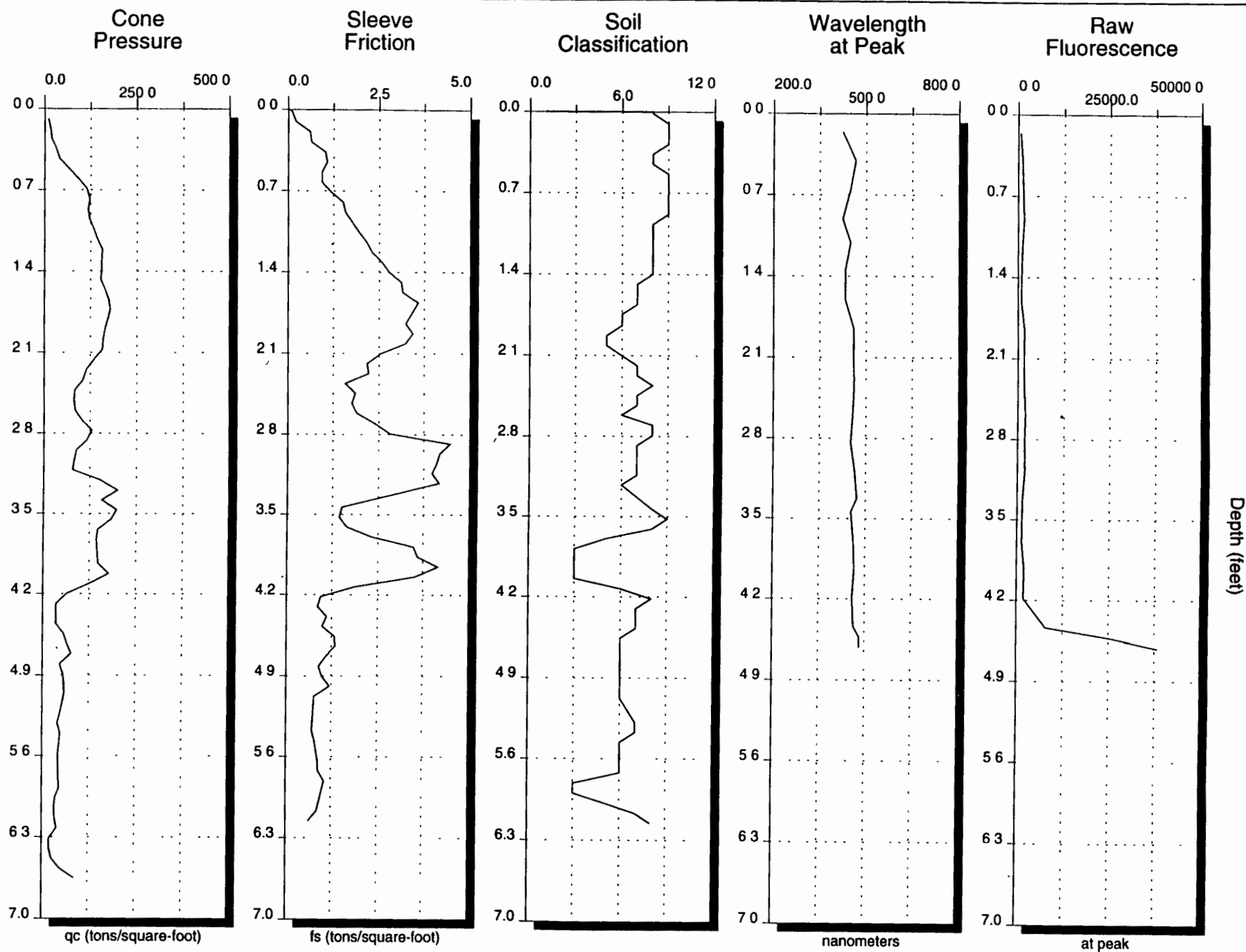
Date: 08-24-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5001.PSH

Probe: C:\BASIC71\DATA\PROBE10.PR

Calibration: C:\BASIC71\DATA\AUG24DFM.CAL



Time: 14:33:27

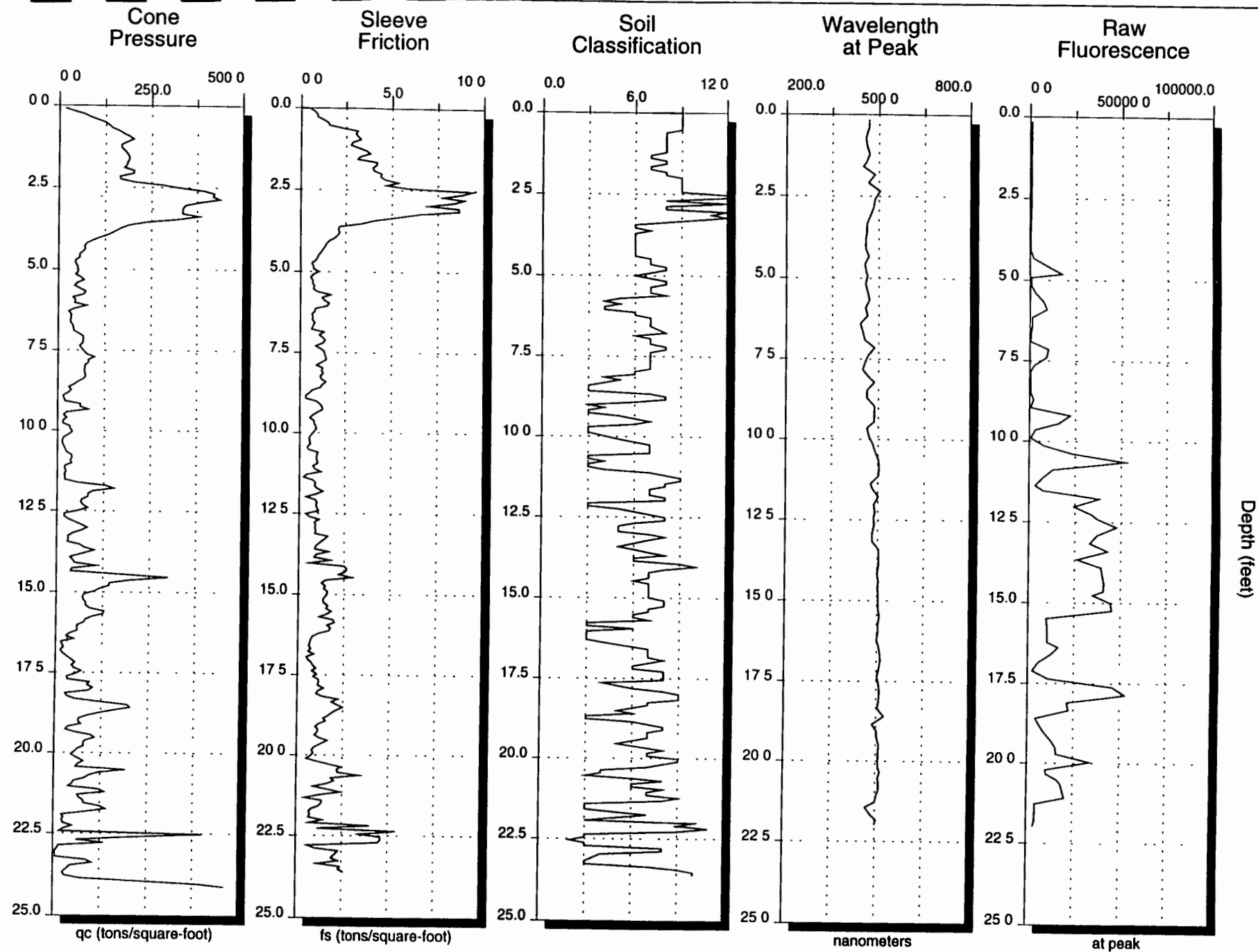
Date: 08-24-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5002.PSH

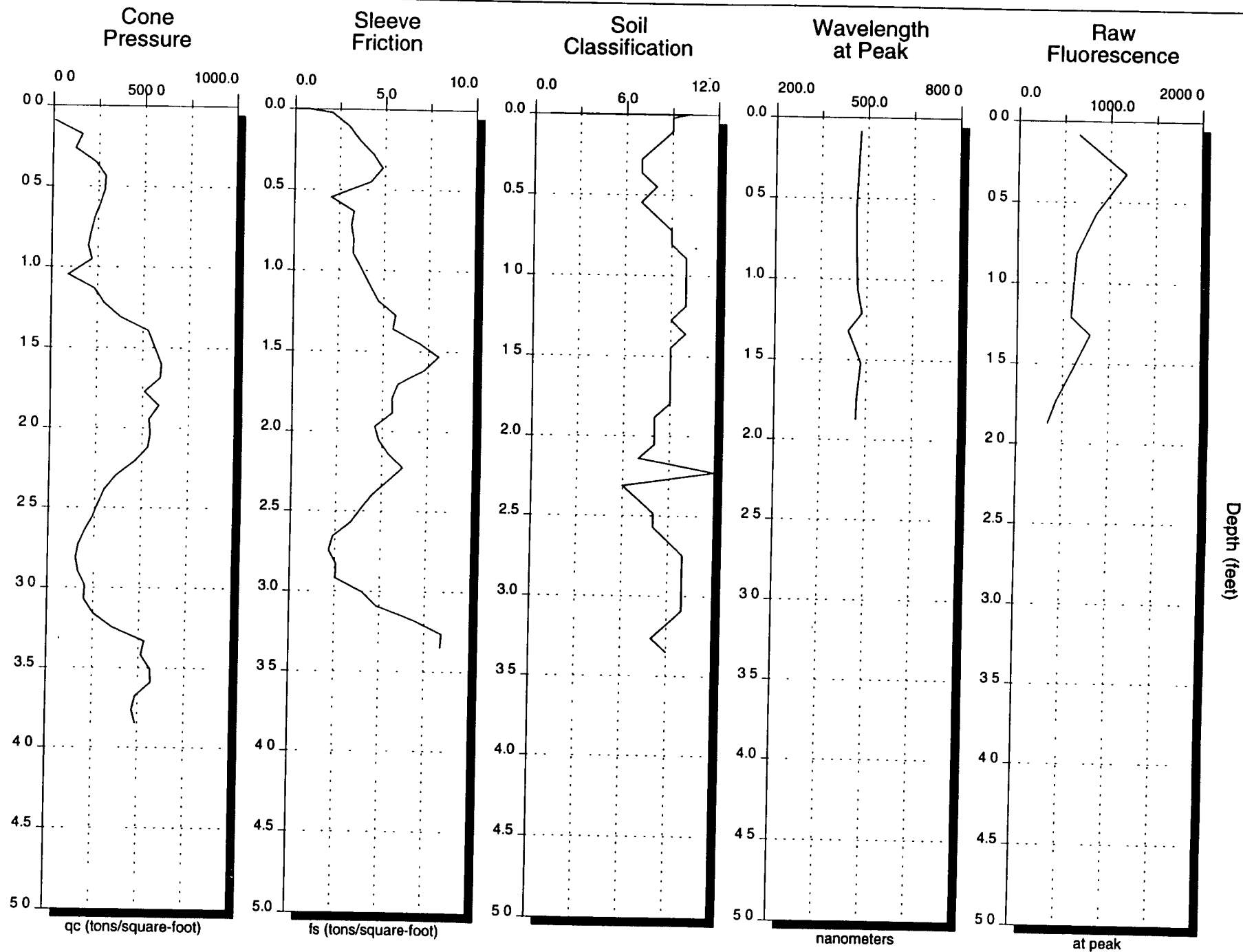
Probe: C:\BASIC71\DATA\PROBE14.PRB

Calibration: C:\BASIC71\DATA\AUG24DFM.CAL



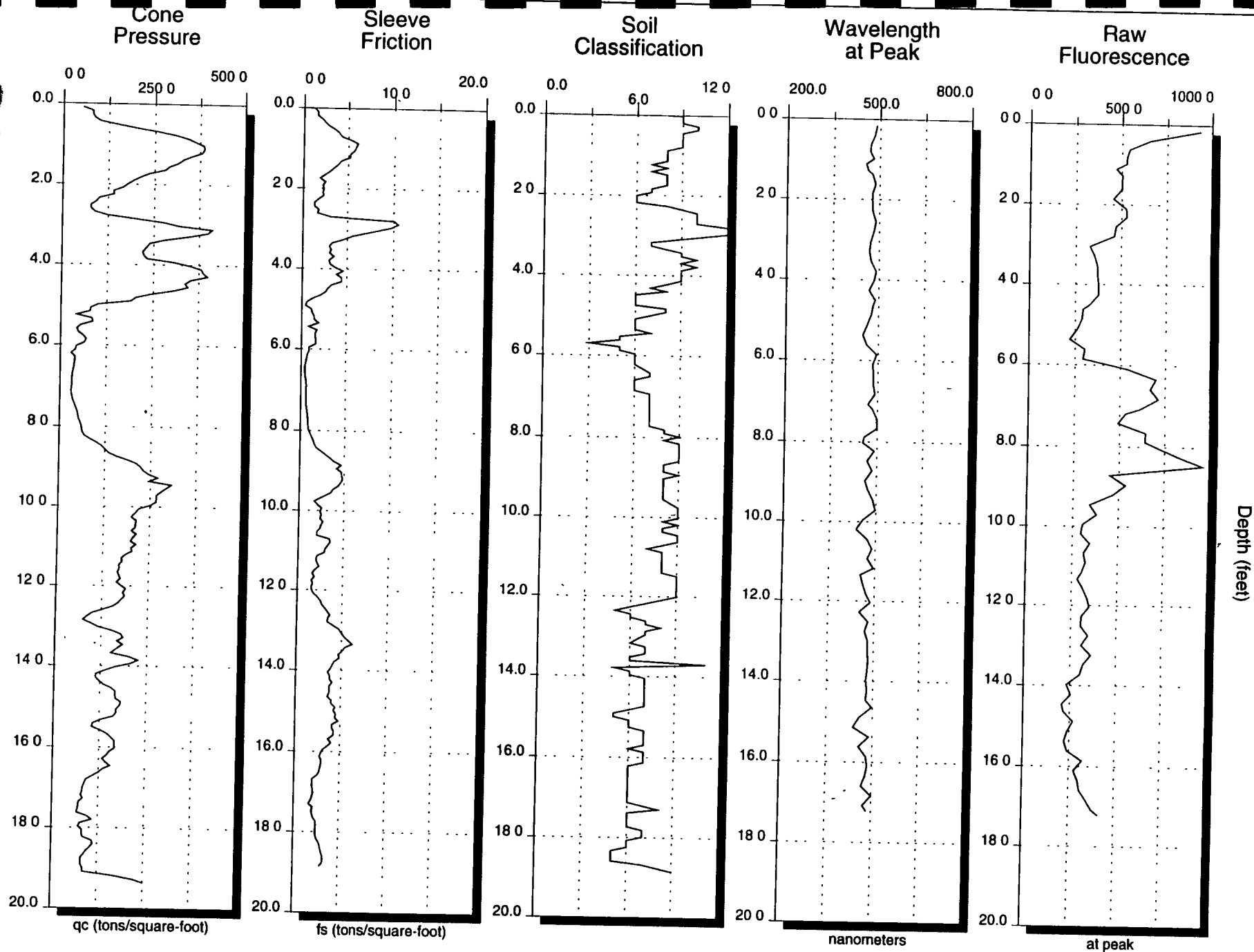
Time: 15:58:28
Date: 08-24-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5003.PSH
Probe: C:\BASIC71\DATA\PROBE14.PRB
Calibration: C:\BASIC71\DATA\AUG24DFM.CAL



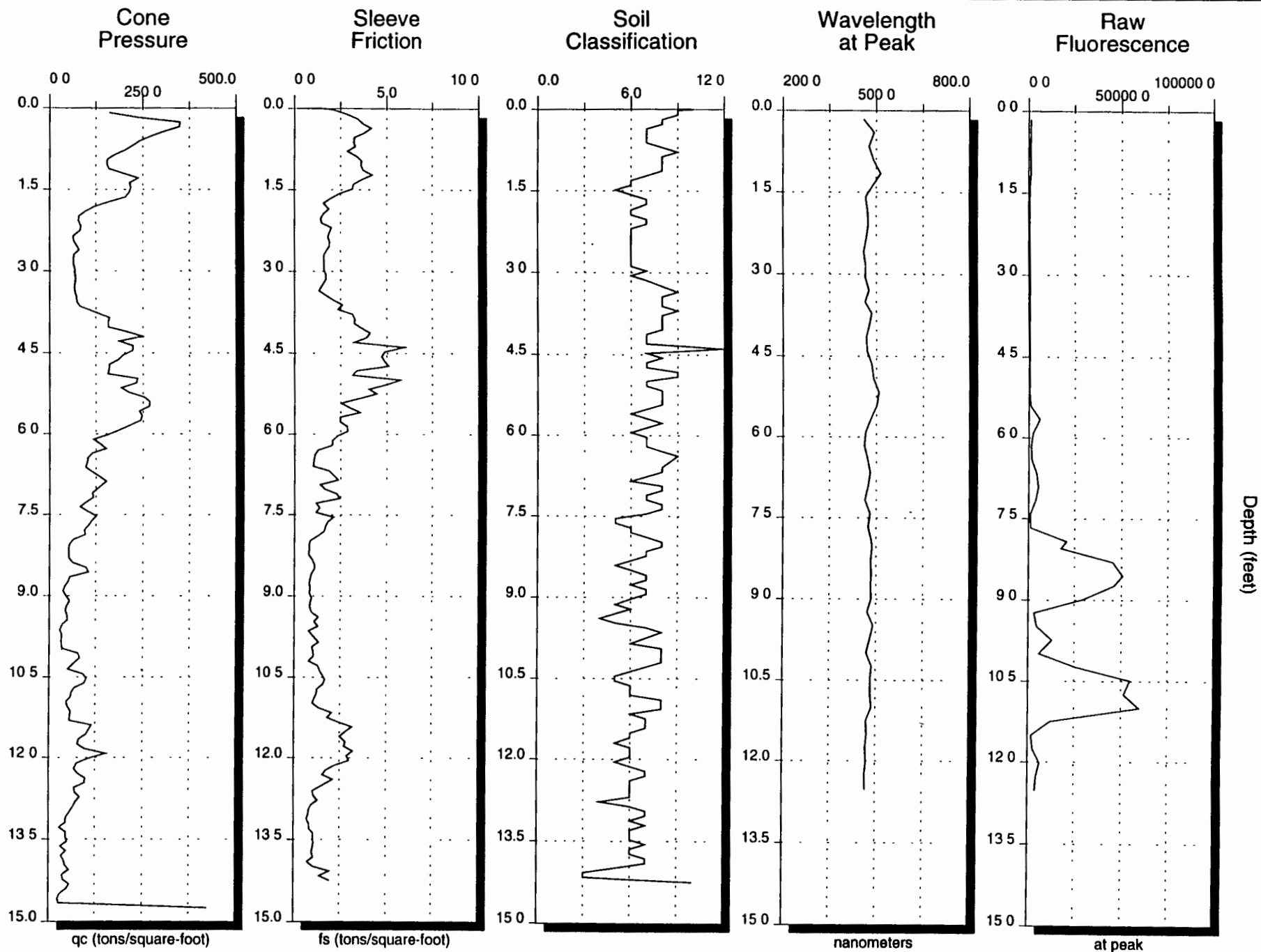
Time: 17:18:12
Date: 08-24-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5004.PSH
Probe: C:\BASIC71\DATA\PROBE14.PRB
Calibration: C:\BASIC71\DATA\AUG24DEM.CAL



Time: 17:39:43
Date: 08-24-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5005.PSH
Probe: C:\BASIC71\DATA\PROBE14.PRB
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 08:53:35

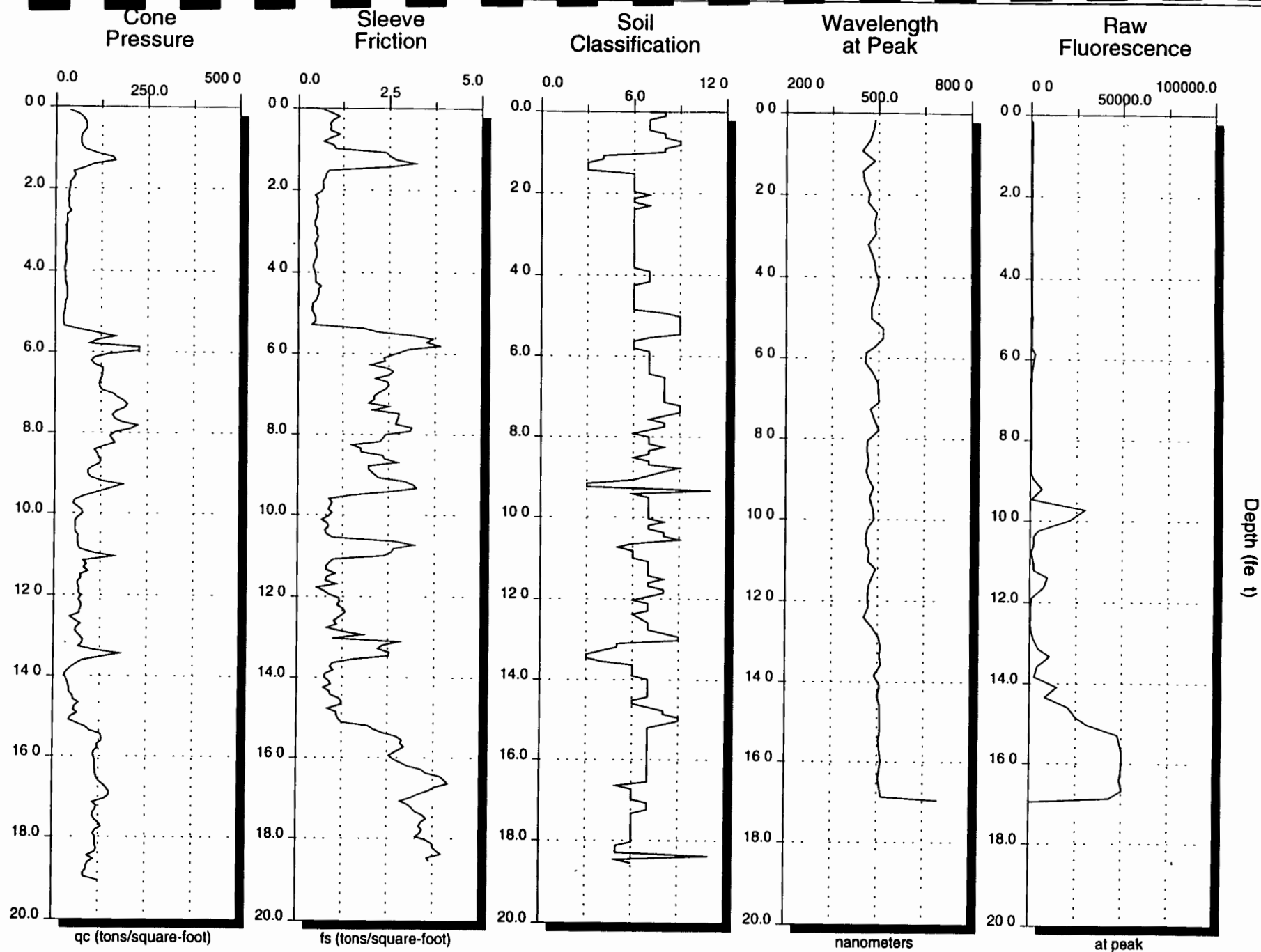
Date: 08-25-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5006.PSH

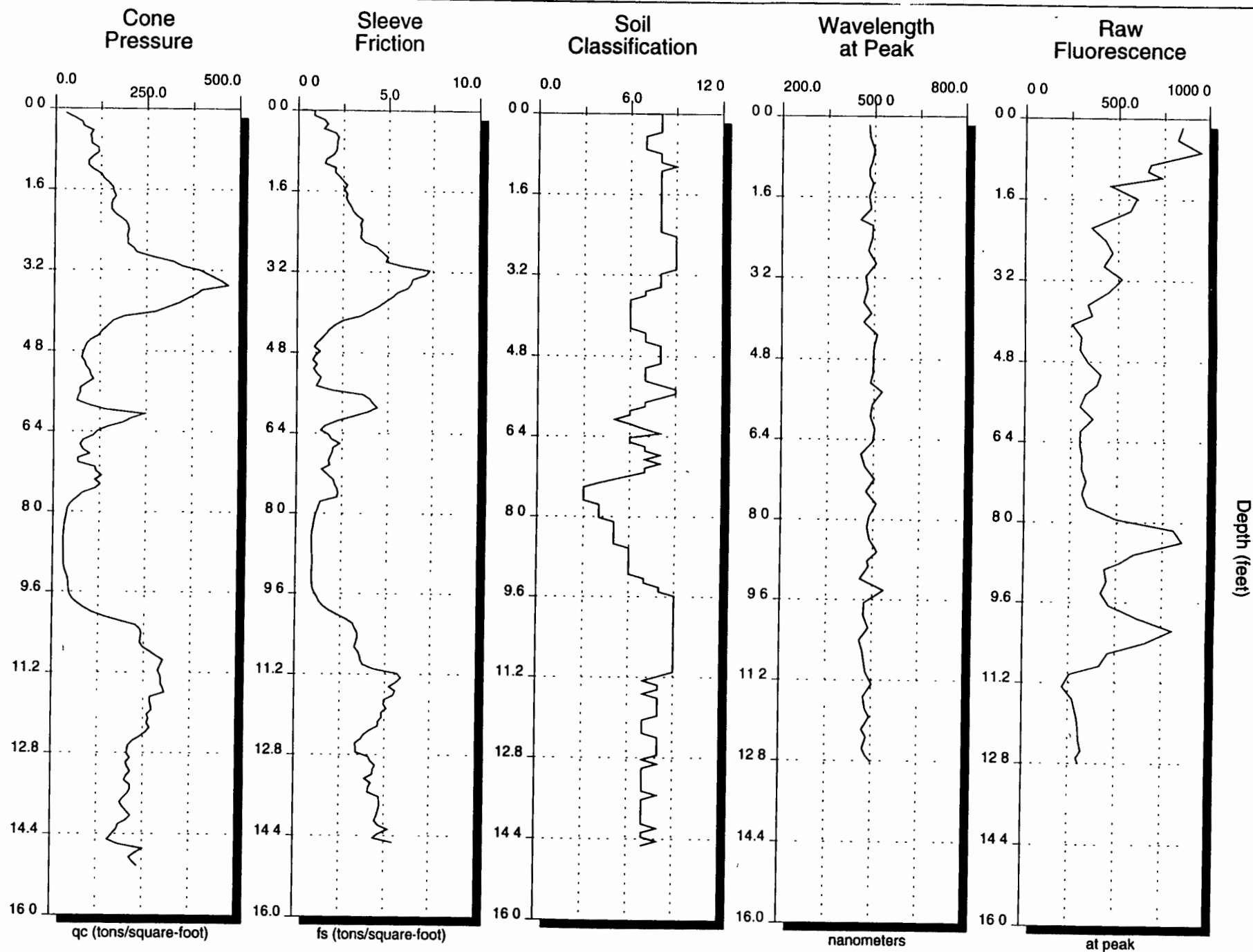
Probe: C:\BASIC71\DATA\PROBE14.PR

Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 09:37:35
Date: 08-25-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5007.PSH
Probe: C:\BASIC71\DATA\PROBE14.PR
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 10:16:31

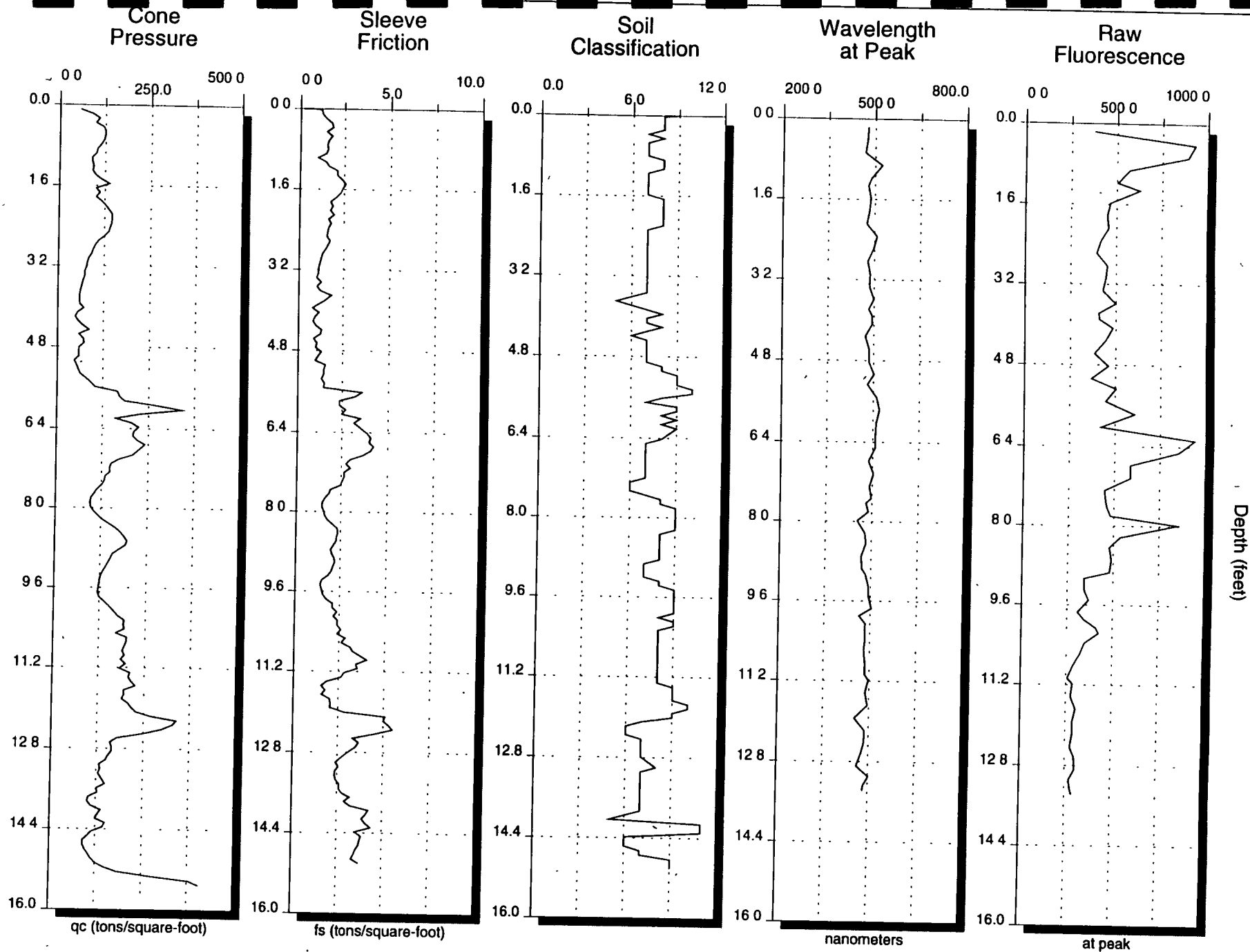
Date: 08-25-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5008.PSH

Probe: C:\BASIC71\DATA\PROBE14.PR

Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 10:51:33

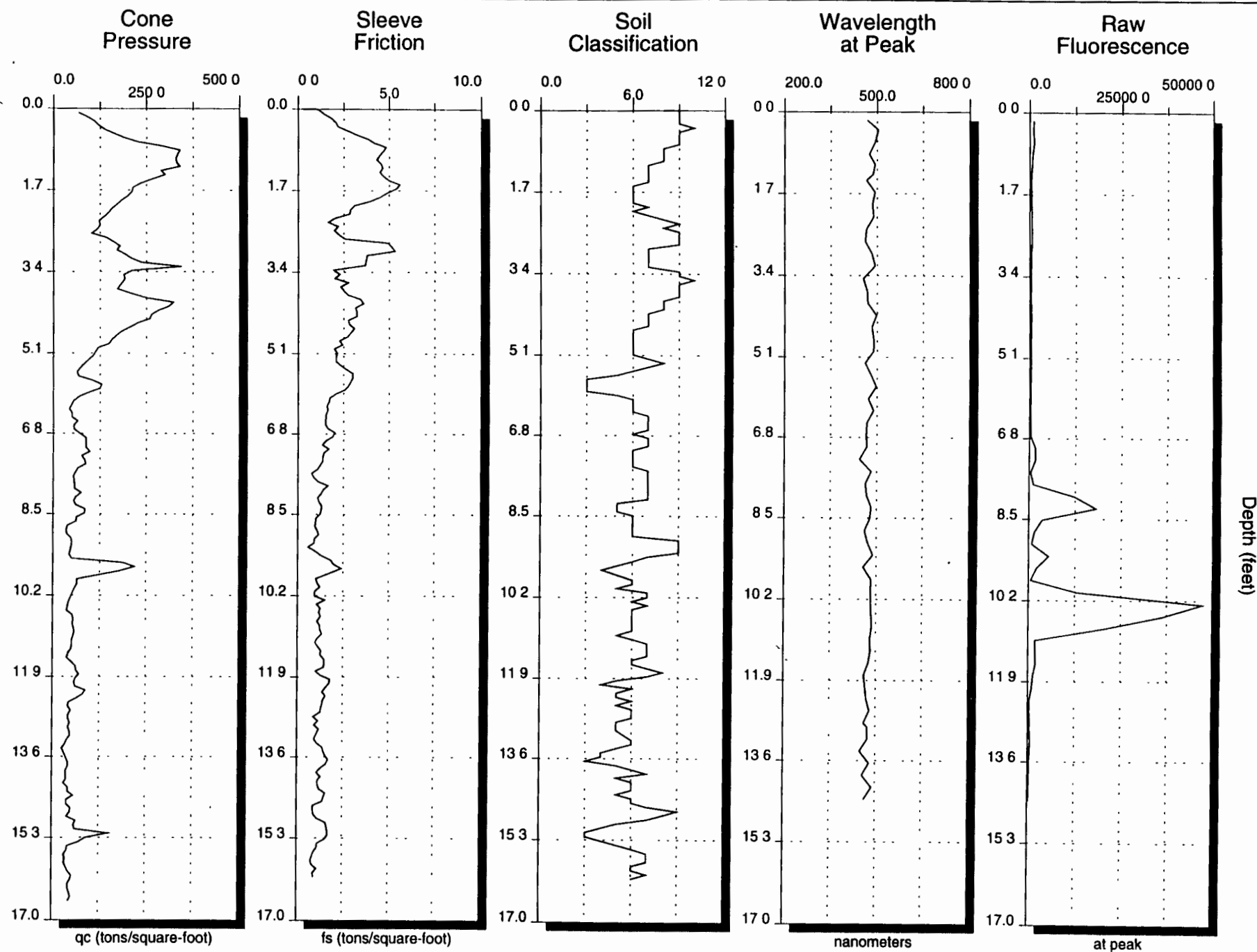
Date: 08-25-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5009.PSH

Probe: C:\BASIC71\DATA\PROBE14.PRB

Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 14:13:07

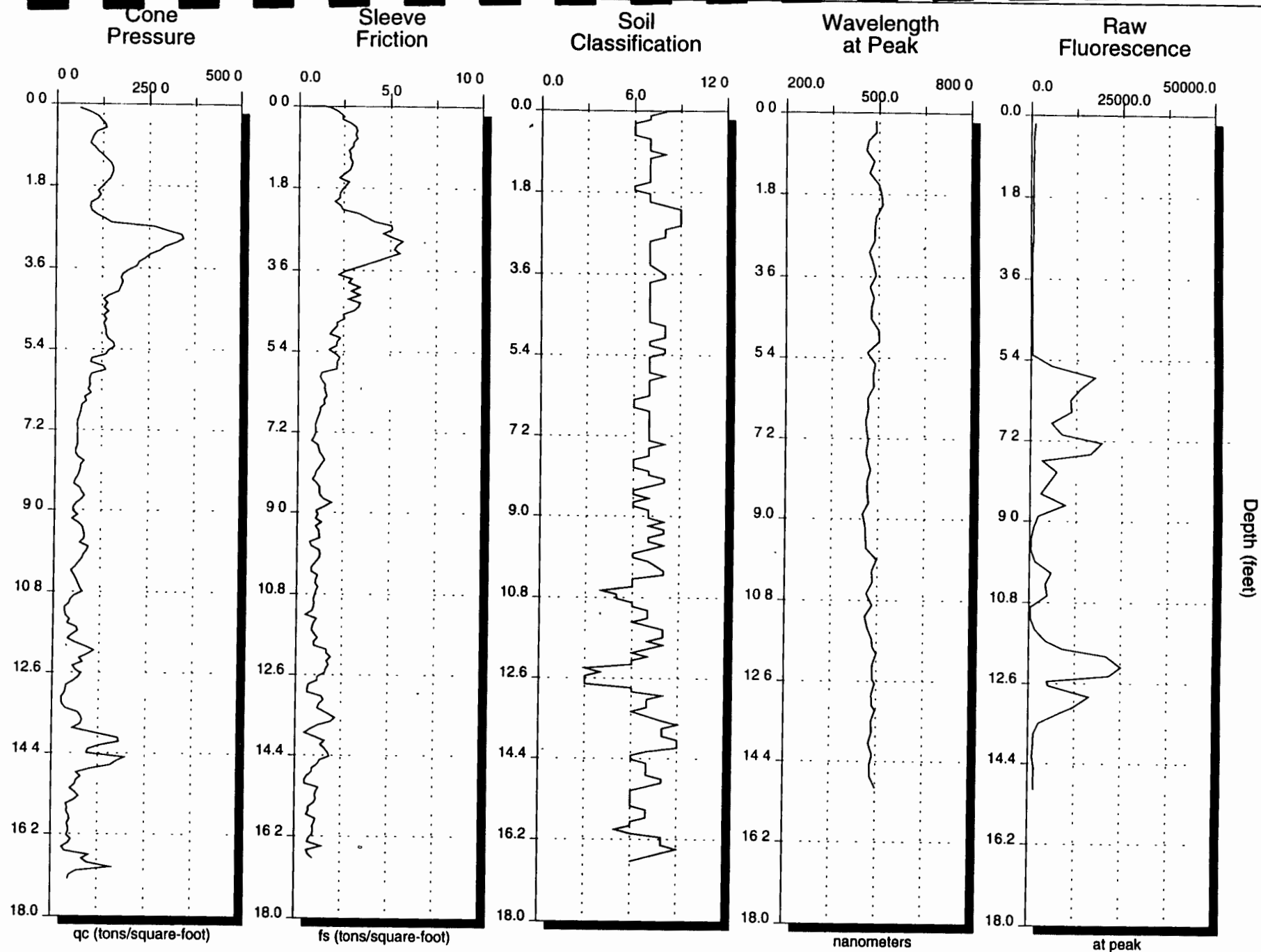
Date: 08-25-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5010.PSH

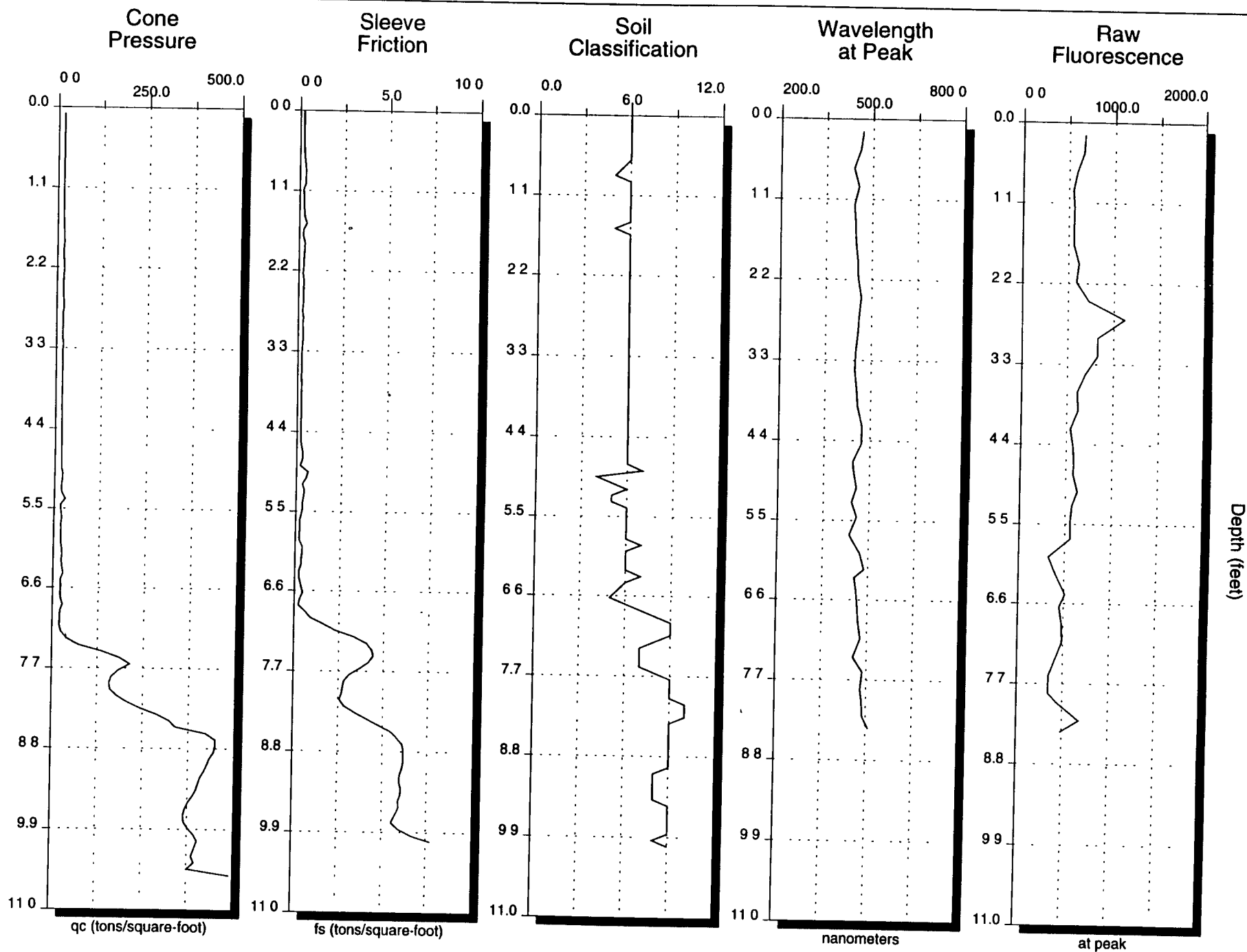
Probe: C:\BASIC71\DATA\PROBE14.PR8

Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 14:42:25
Date: 08-25-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5011.PSH
Probe: C:\BASIC71\DATA\PROBE14.PR
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 15:20:18

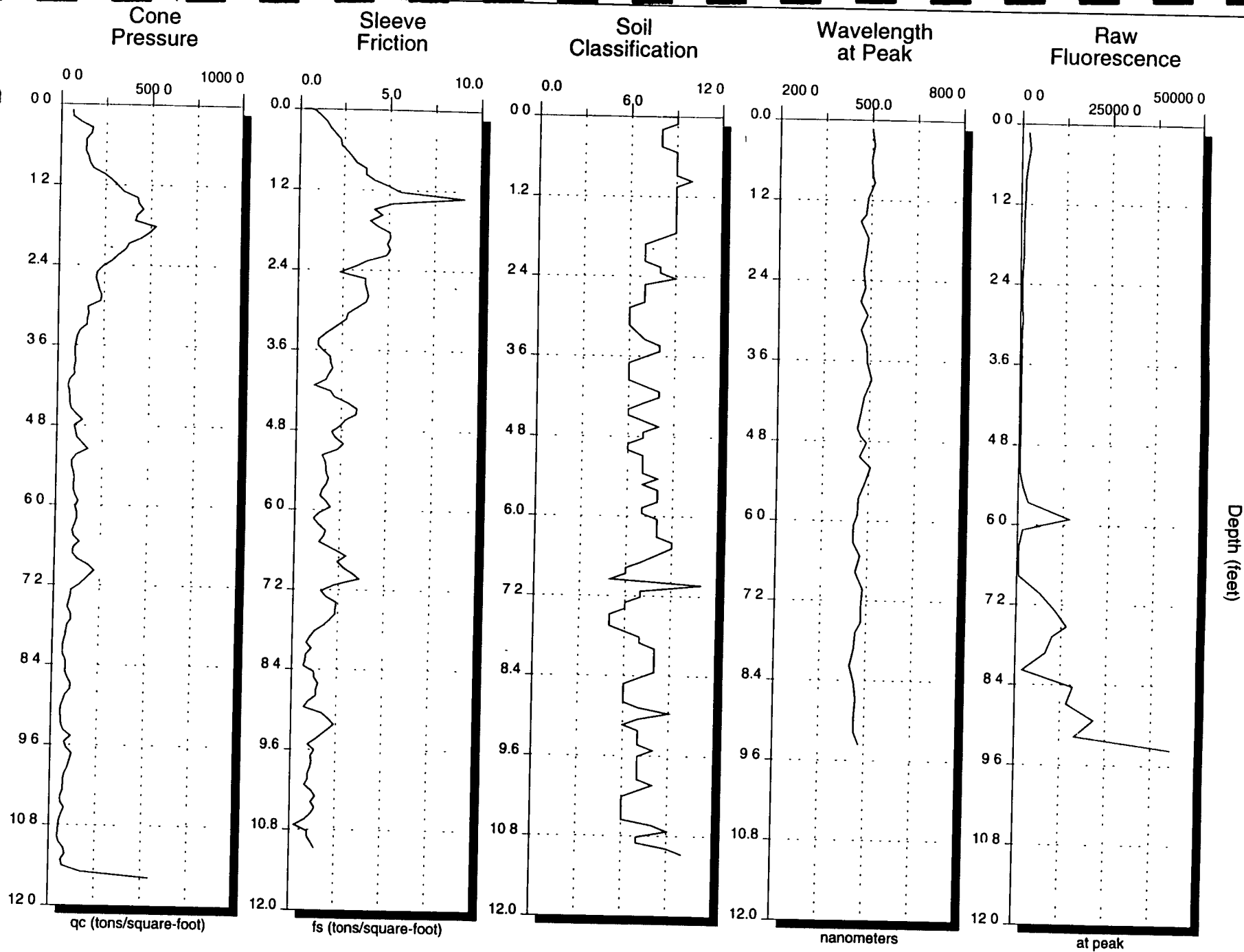
Date: 08-25-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5012.PSH

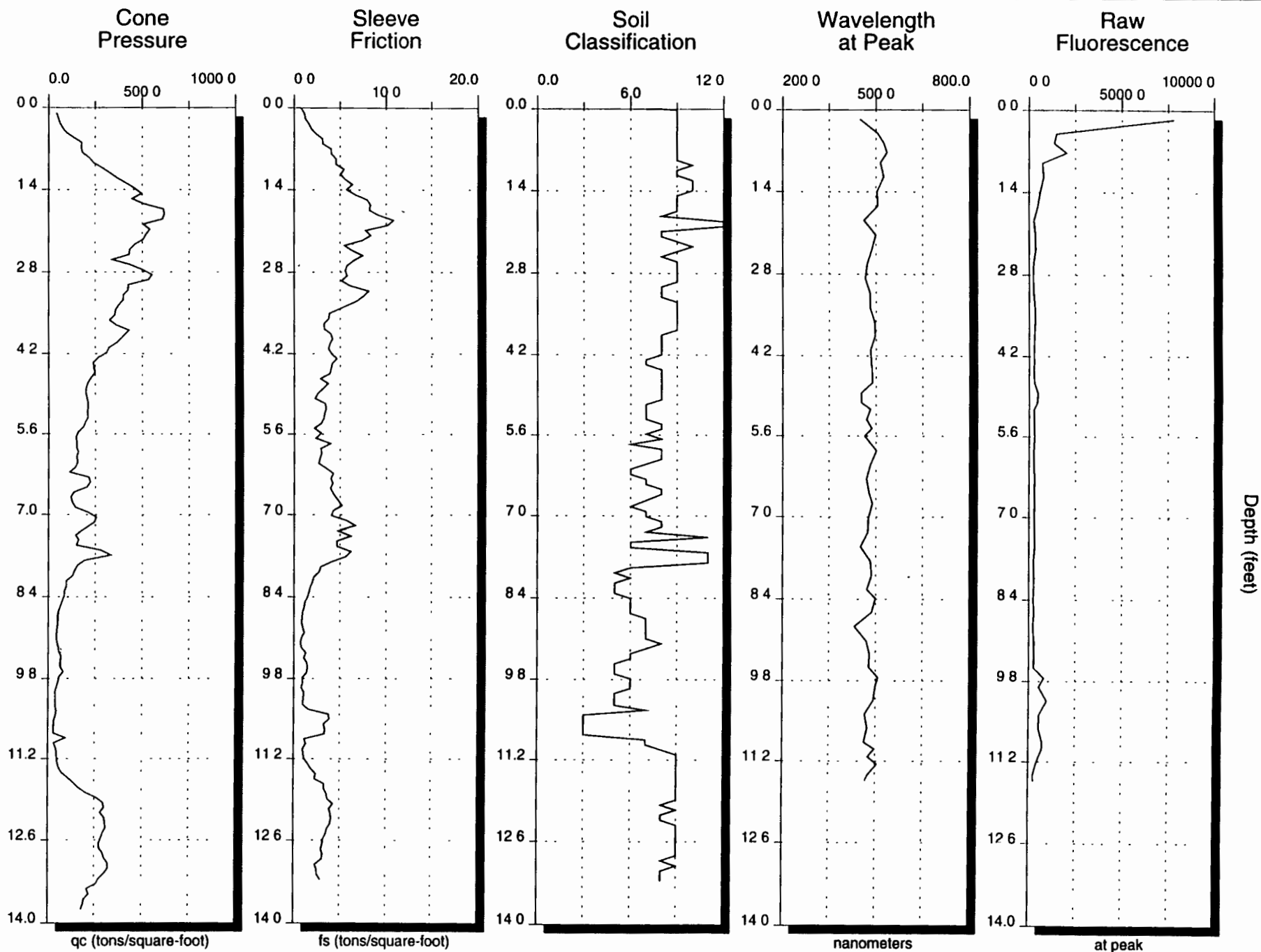
Probe: C:\BASIC71\DATA\PROBE14.PRB

Calibration: C:\BASIC71\DATA\AUG25DEM.CAL



Time: 16:13:16
Date: 08-25-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5013.PSH
Probe: C:\BASIC71\DATA\PROBE14.PRB
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 16:55:52

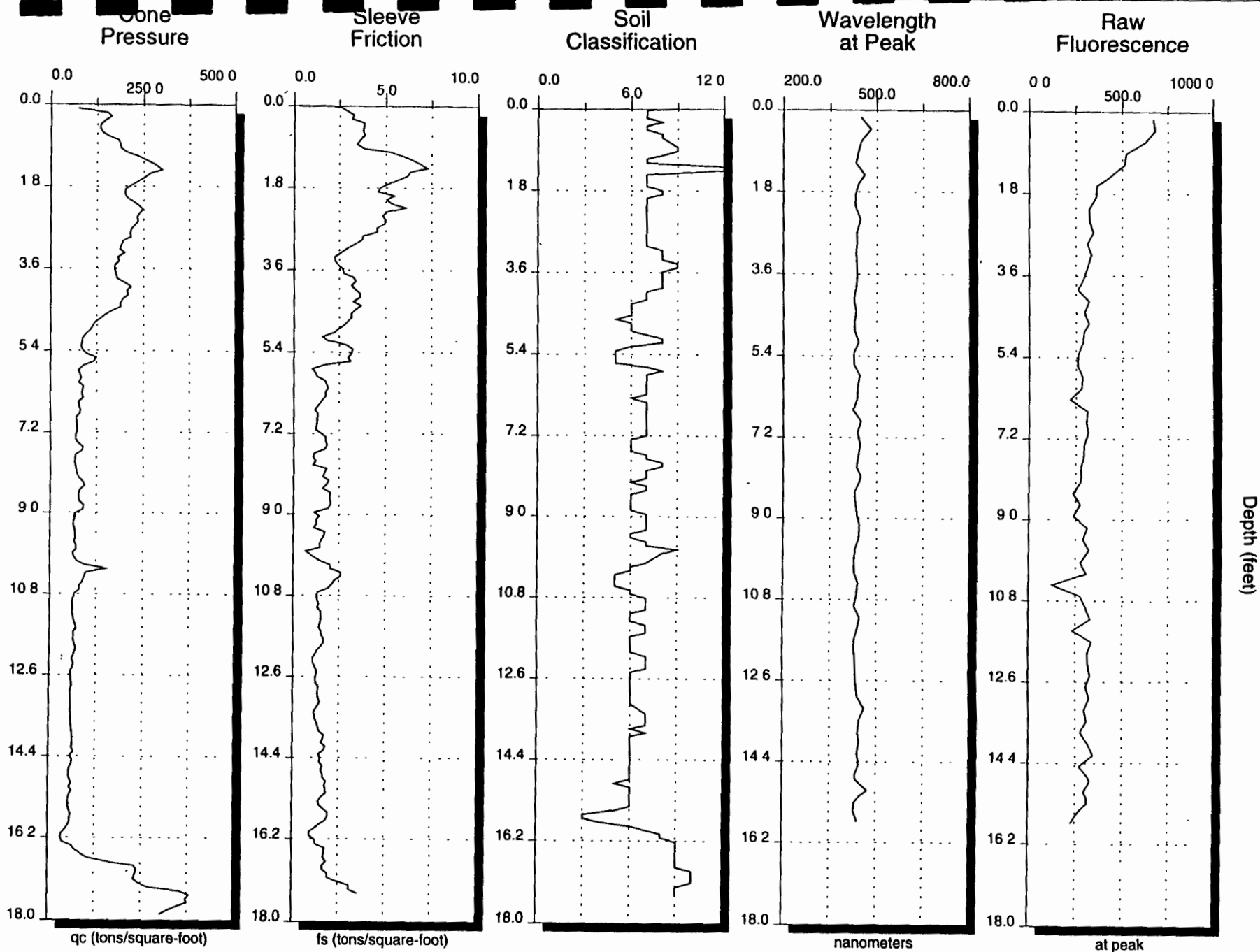
Date: 08-25-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5014.PSH

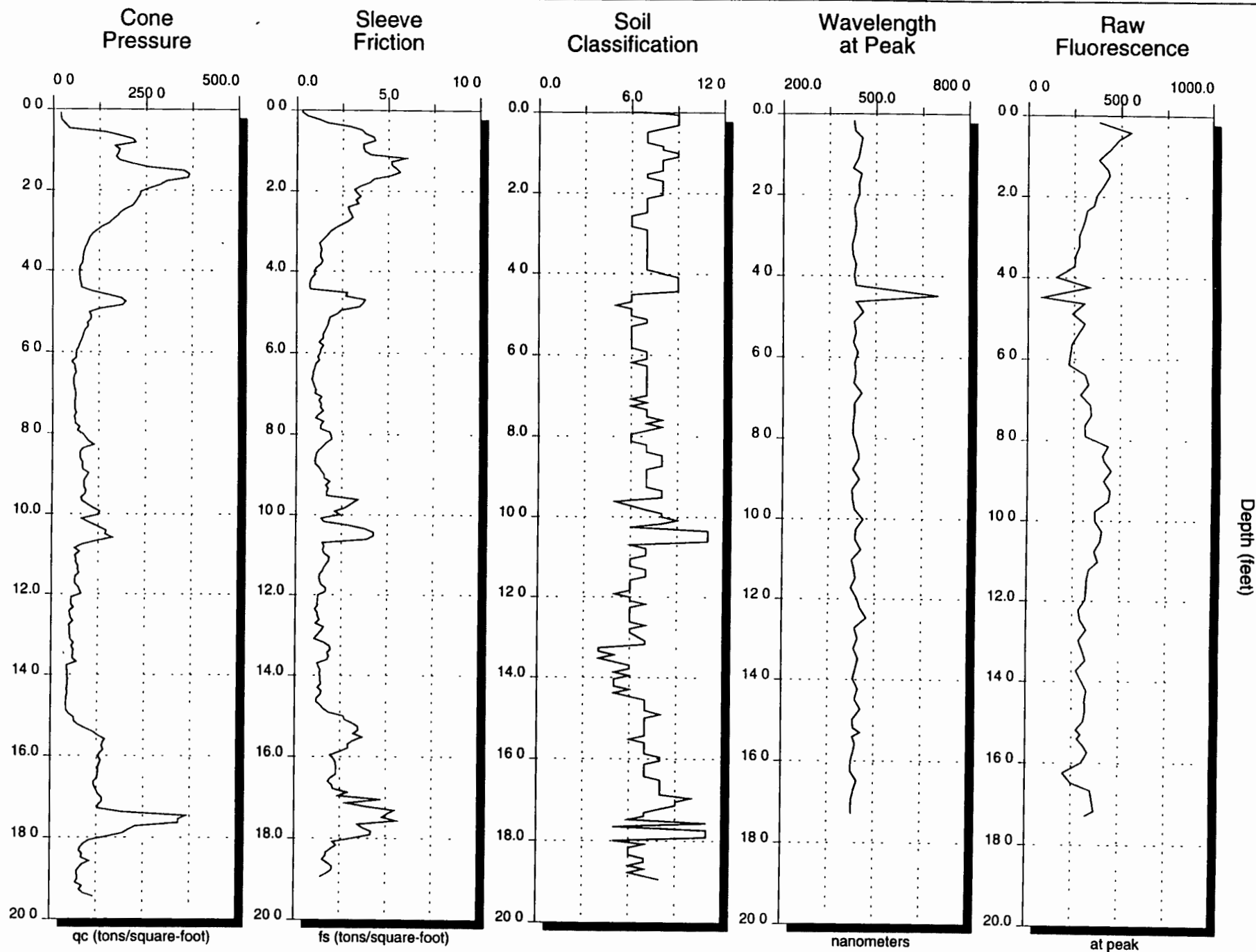
Probe: C:\BASIC71\DATA\PROBE14.PRB

Calibration: C:\BASIC71\DATA\AUG25DEM.CAL



Time: 07:59:04
Date: 08-27-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5101.PSH
Probe: C:\BASIC71\DATA\PROBE14B.PR
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 08:42:41

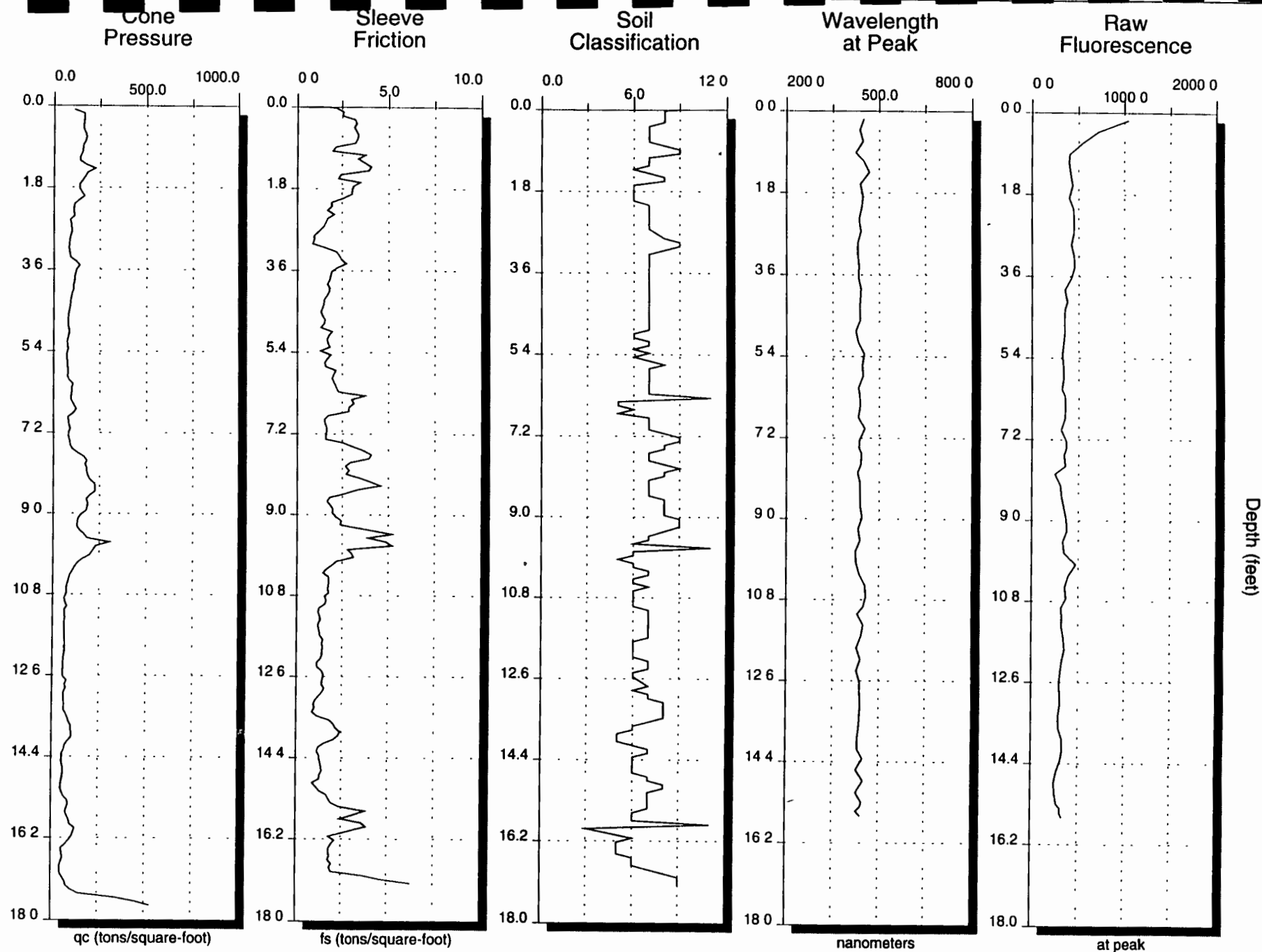
Date: 08-27-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5102.PSH

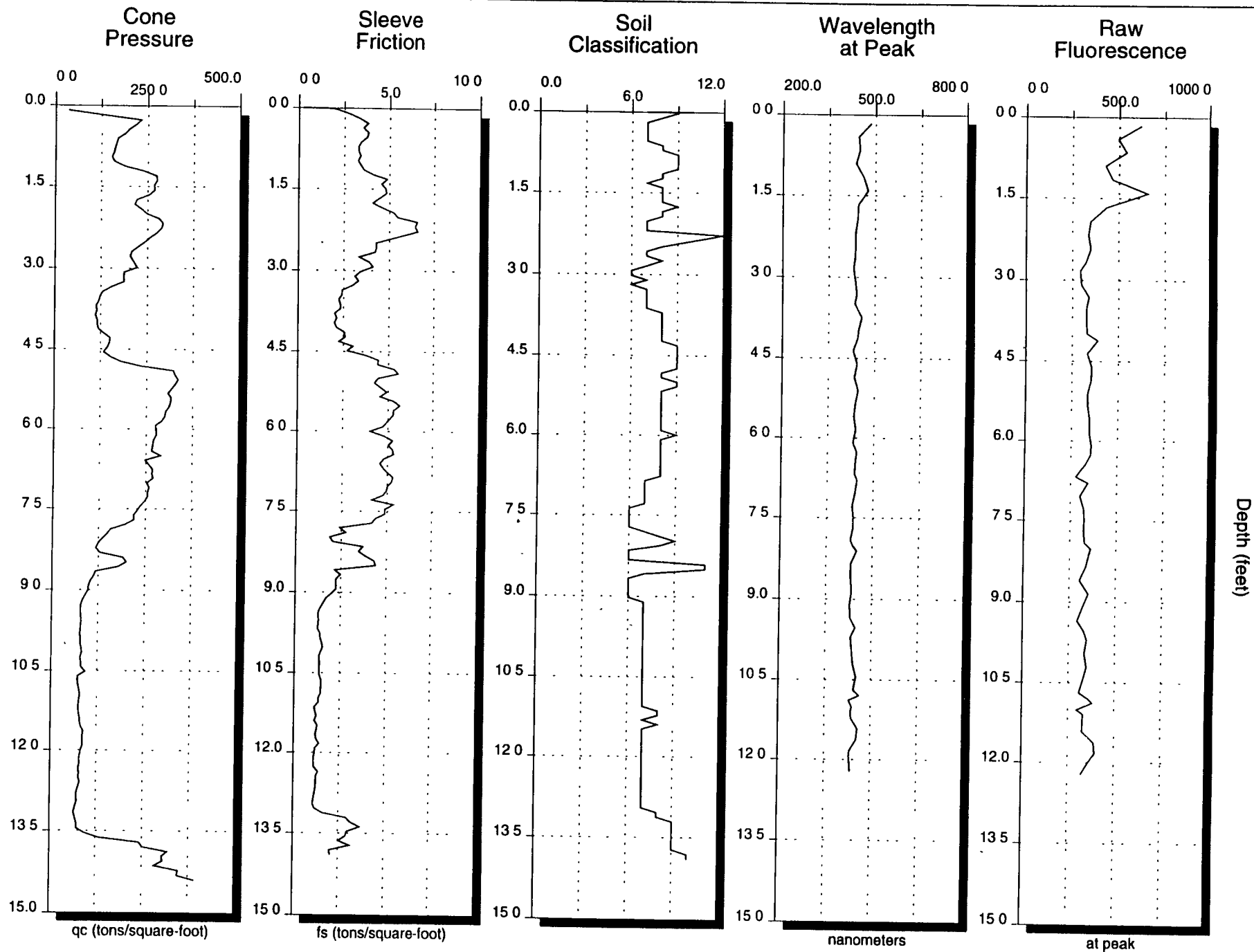
Probe: C:\BASIC71\DATA\PROBE14B.PR8

Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



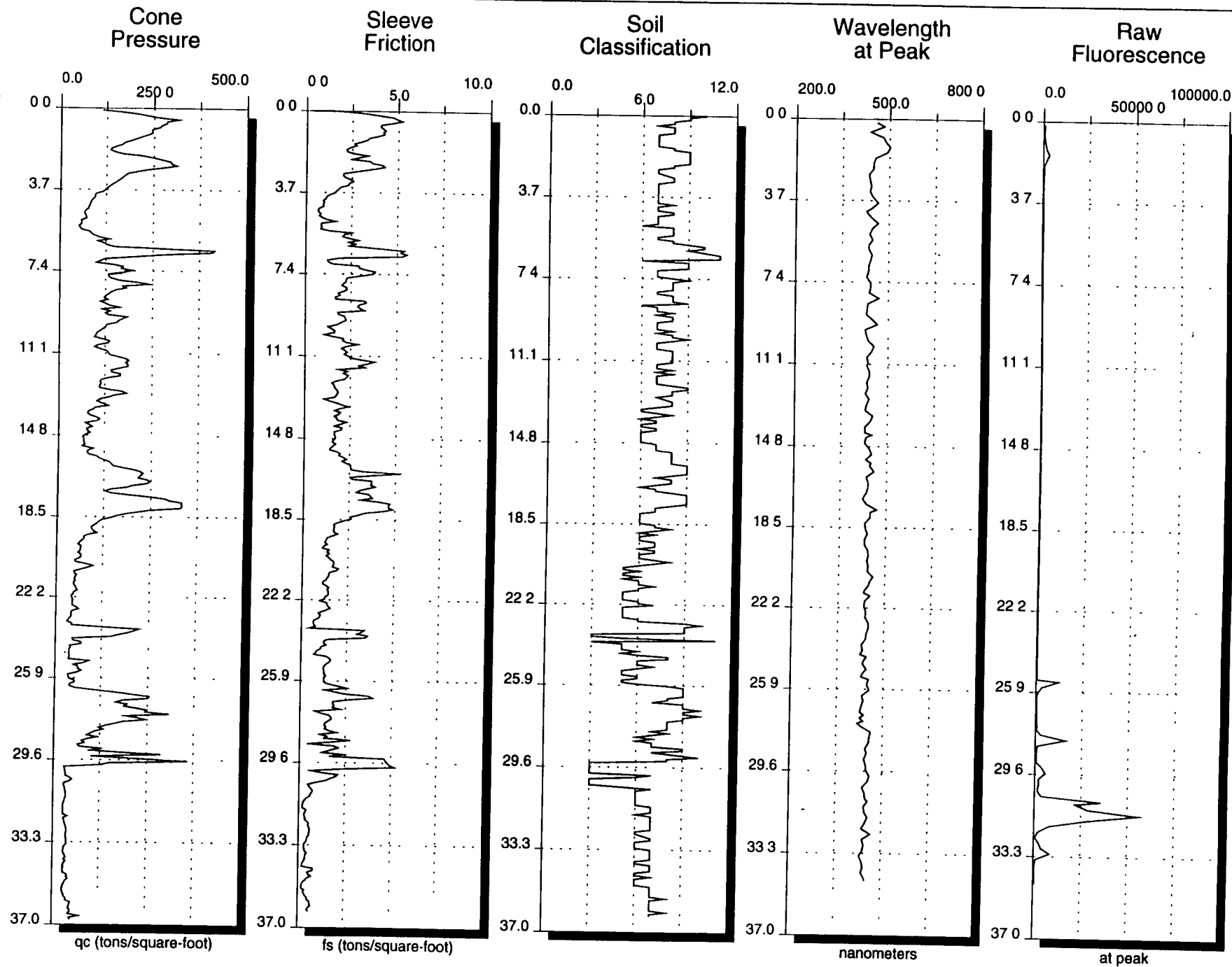
Time: 09:36:22
Date: 08-27-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5103.PSH
Probe: C:\BASIC71\DATA\PROBE14B.PR
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 11:03:16
Date: 08-27-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5104.PSH
Probe: C:\BASIC71\DATA\PROBE14B.PRB
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 13:05:40

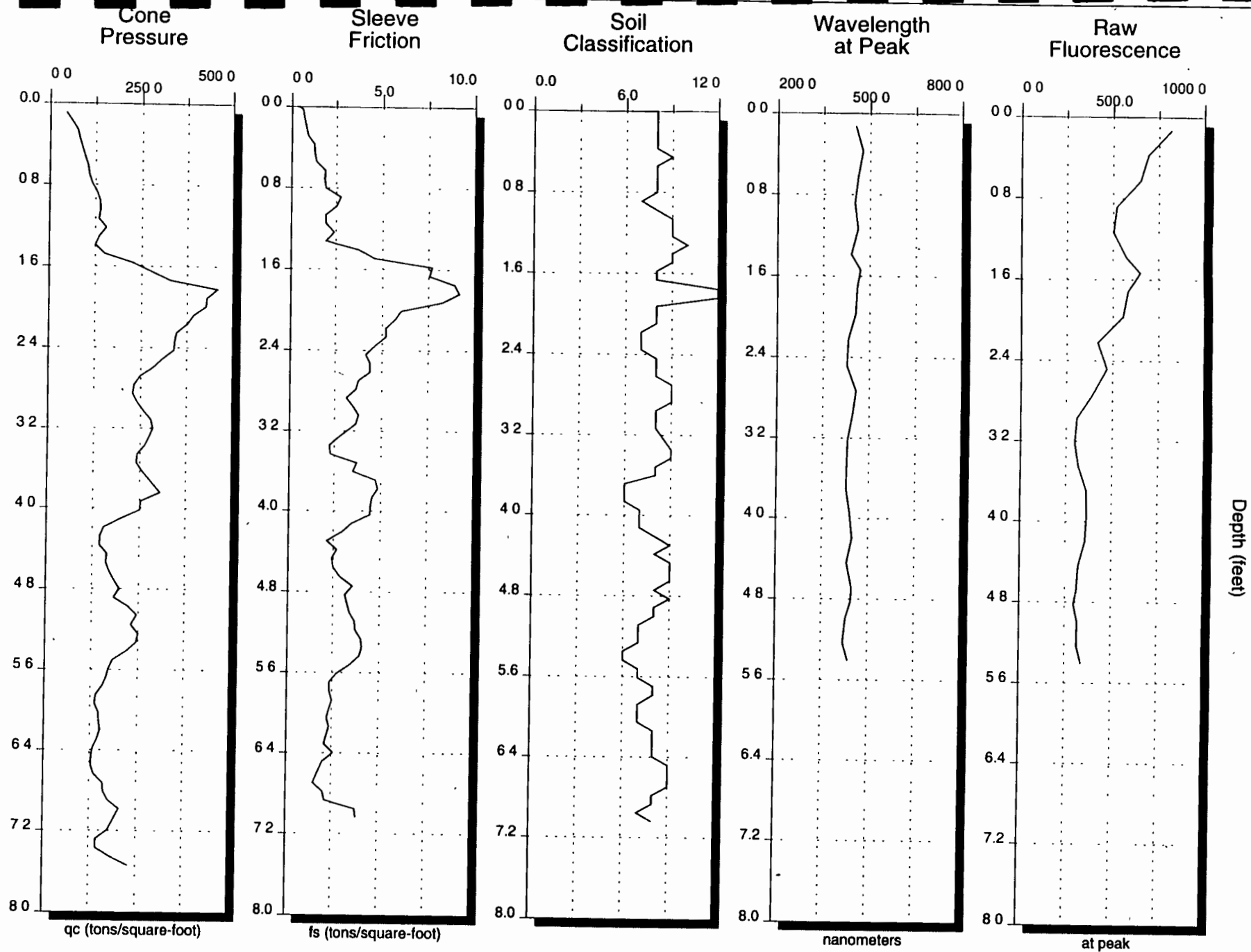
Date: 08-27-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5201.PSH

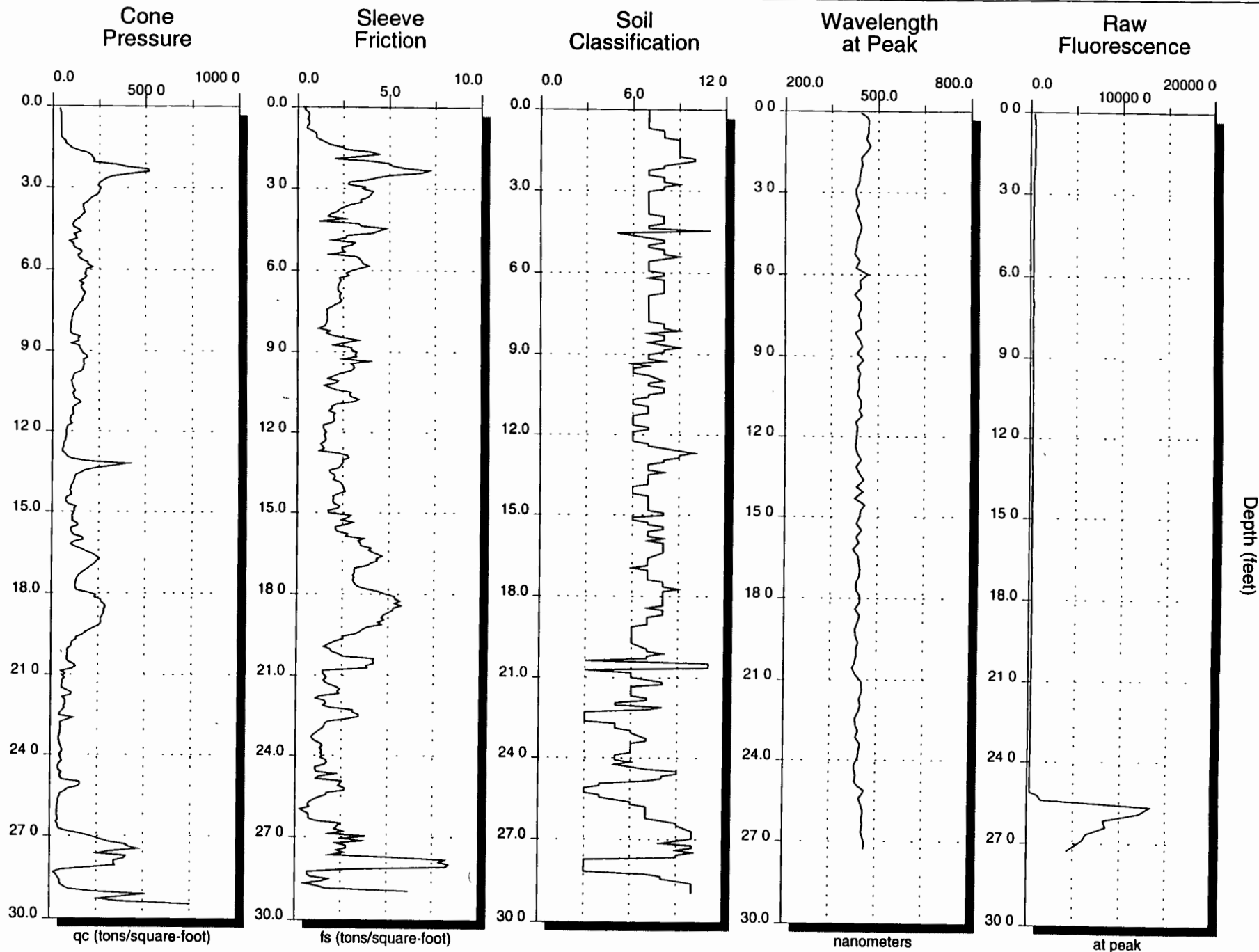
Probe: C:\BASIC71\DATA\PROBE14B.PRB

Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



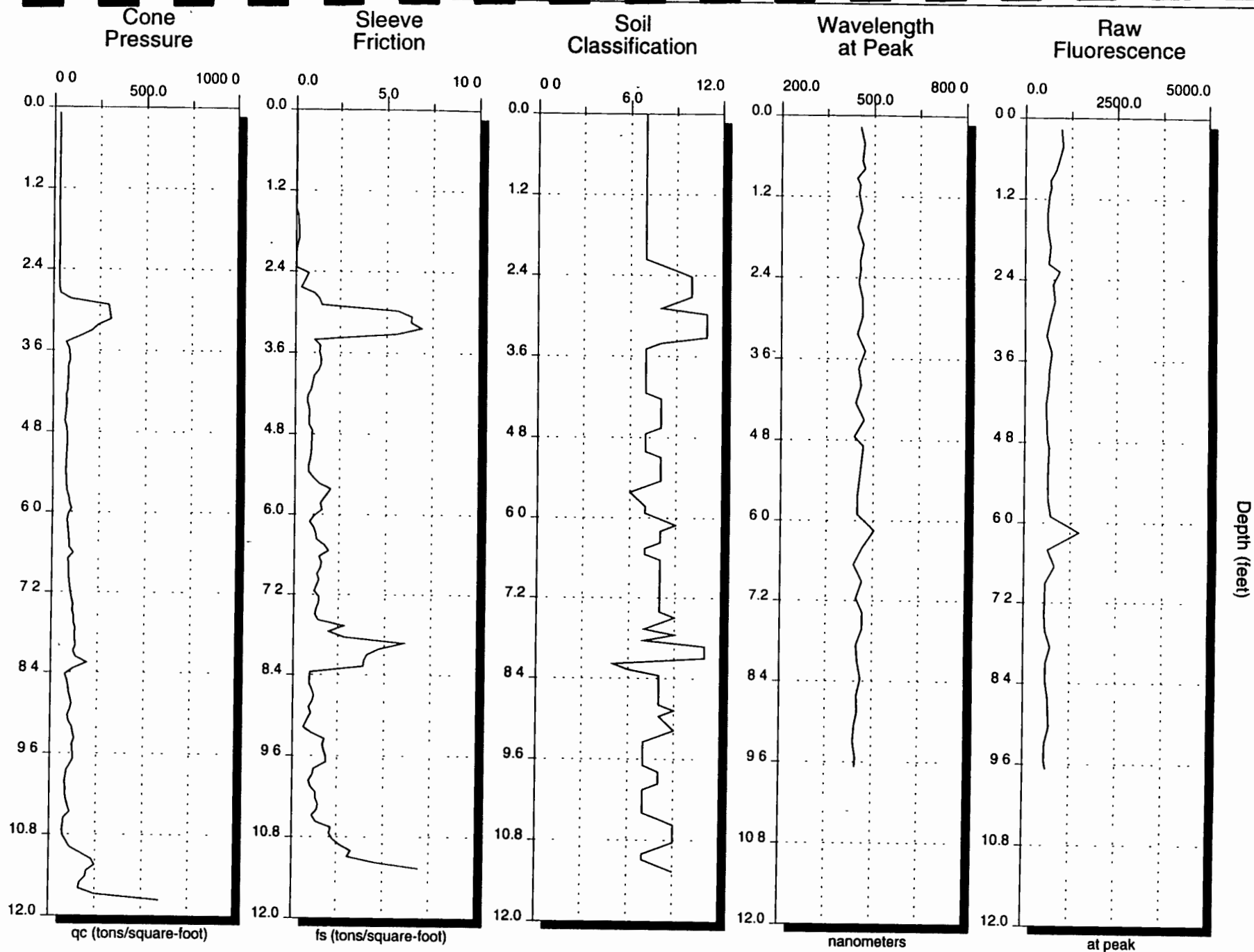
Time: 13:50:09
Date: 08-27-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5202.PSH
Probe: C:\BASIC71\DATA\PROBE14B.PR8
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



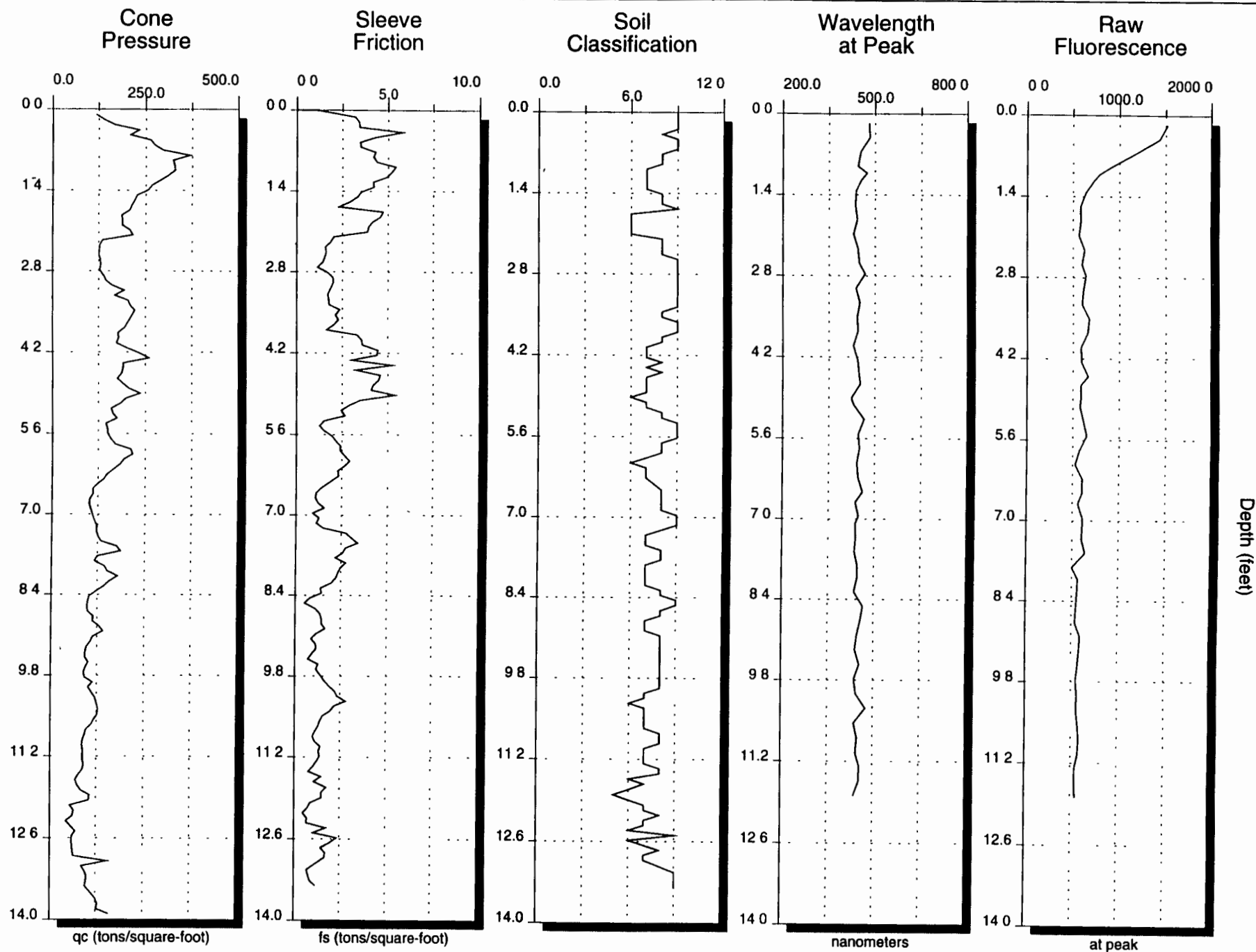
Time: 14:09:22
Date: 08-27-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5203.PSH
Probe: C:\BASIC71\DATA\PROBE14C.PR
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 16:17:30
Date: 09-05-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5205.PSH
Probe: C:\BASIC71\DATA\PROBE14C.PR
Calibration: C:\BASIC71\DATA\SEP05DFM.CAL



Time: 16:55:48

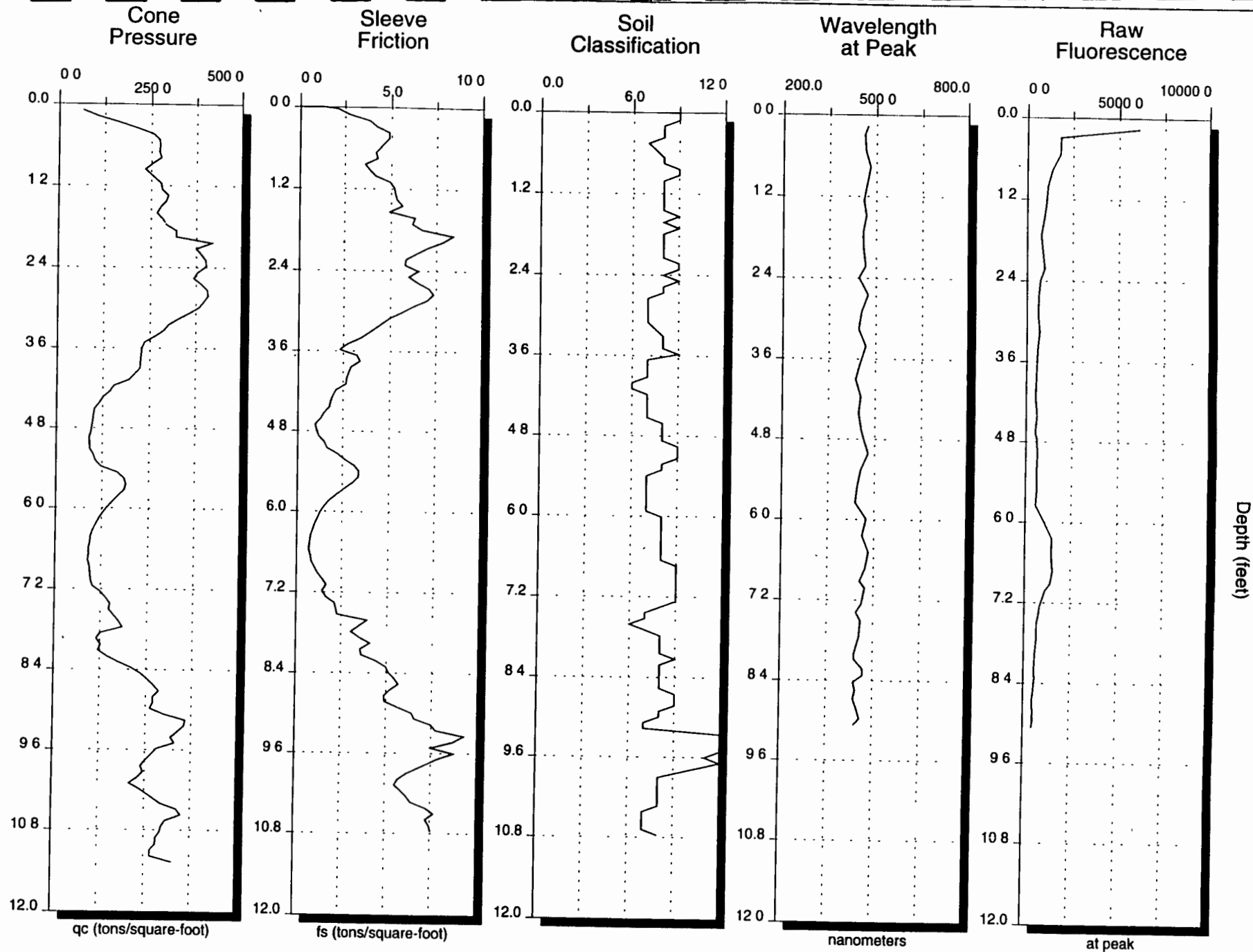
Date: 09-05-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5206.PSH

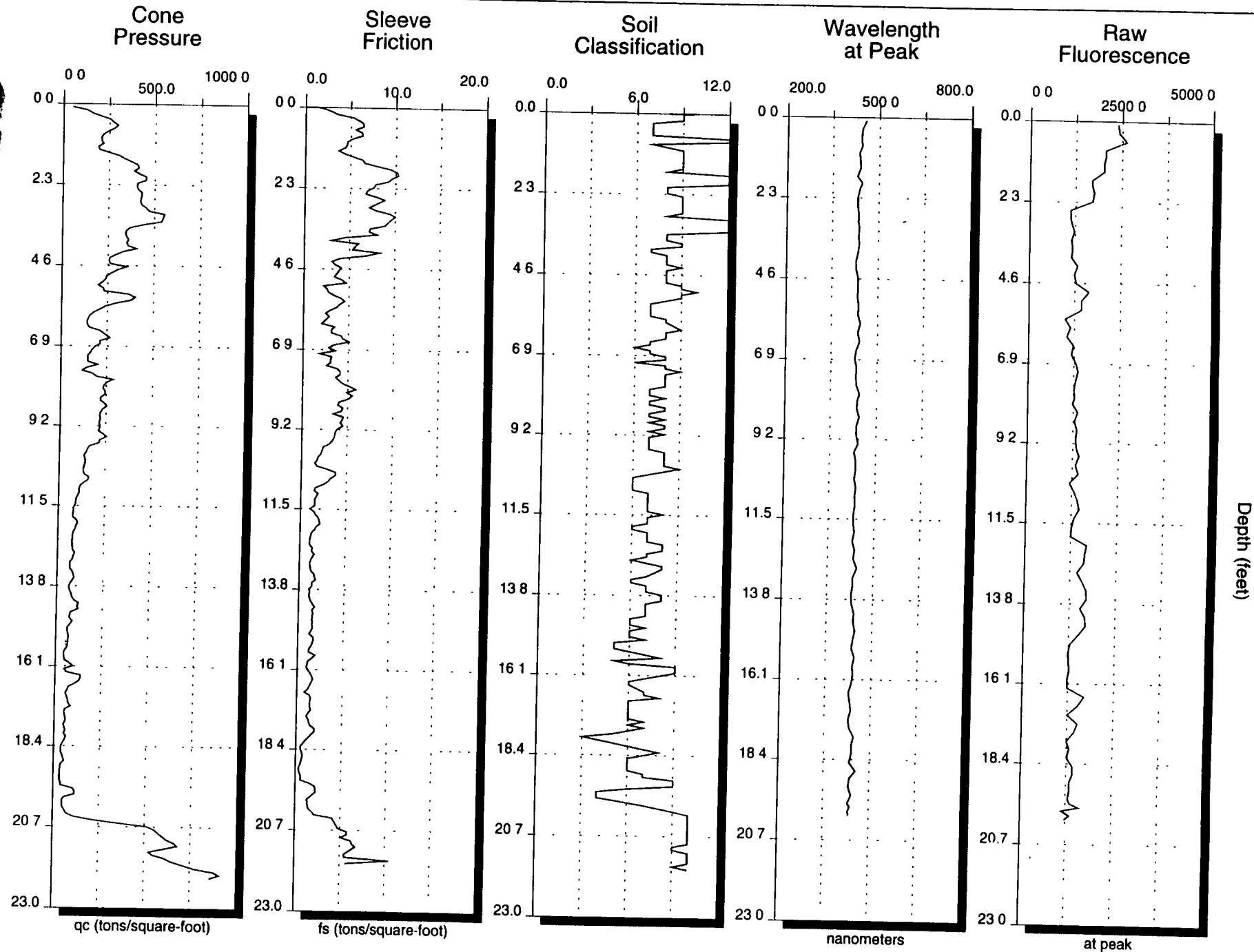
Probe: C:\BASIC71\DATA\PROBE14C.PR8

Calibration: C:\BASIC71\DATA\SEP05DFM.CAL



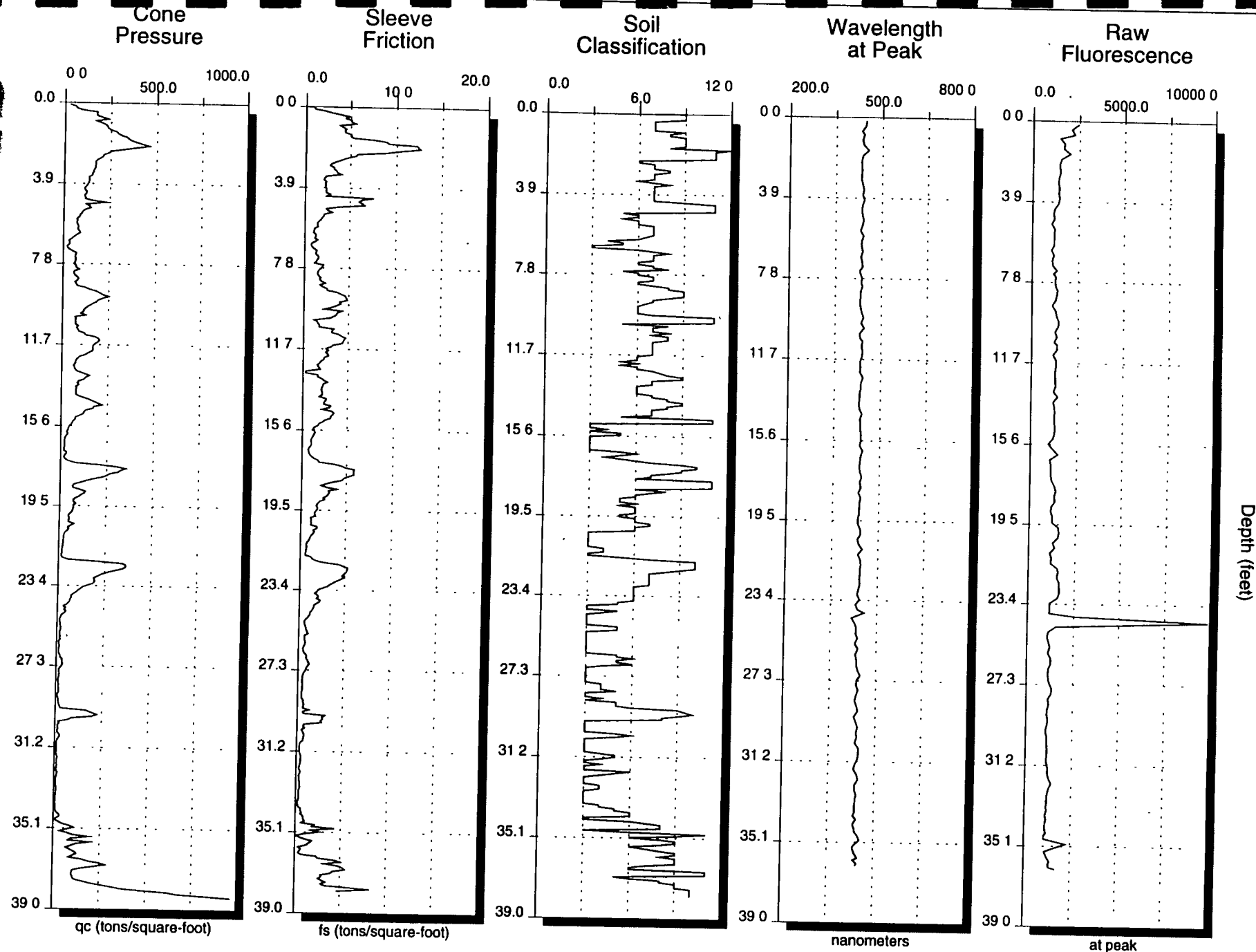
Time: 17:27:25
Date: 09-05-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5207.PSH
Probe: C:\BASIC71\DATA\PROBE14C.PR
Calibration: C:\BASIC71\DATA\SEP06DFM.CAL



Time: 13:44:08
Date: 08-22-1995
Version: 1.0

Push: C:\BASIC71\DATA\NPFF01.PSH
Probe: C:\BASIC71\DATA\PROBE12C.PR
Calibration: C:\BASIC71\DATA\AUB22DFM.CAL



Time: 14:31:30

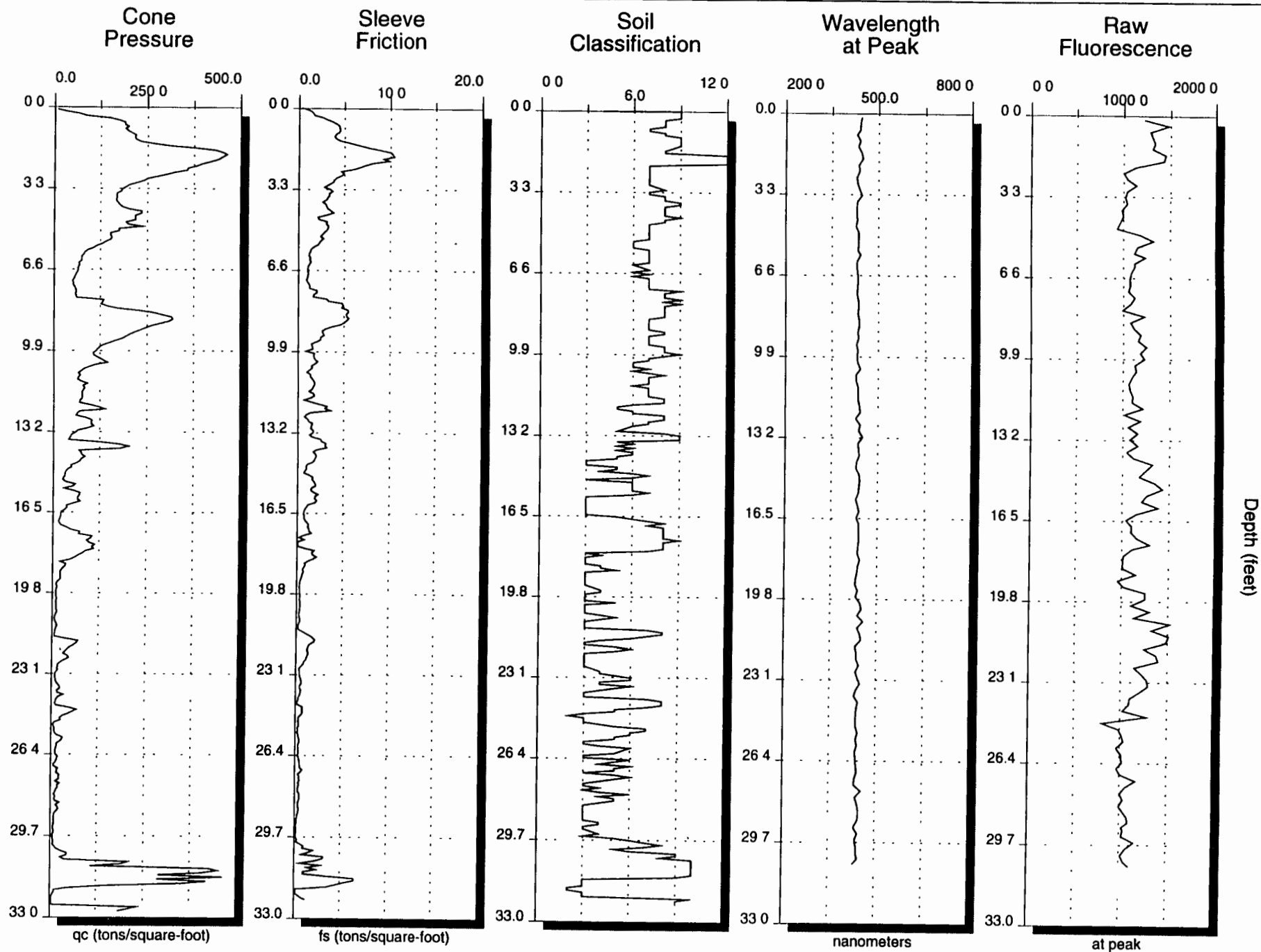
Date: 08-22-1995

Version: 1.0

Push: C:\BASIC71\DATA\NPFF02.PSH

Probe: C:\BASIC71\DATA\PROBE12B.PR8

Calibration: C:\BASIC71\DATA\AUB22DFM.CAL



Time: 15:33:13

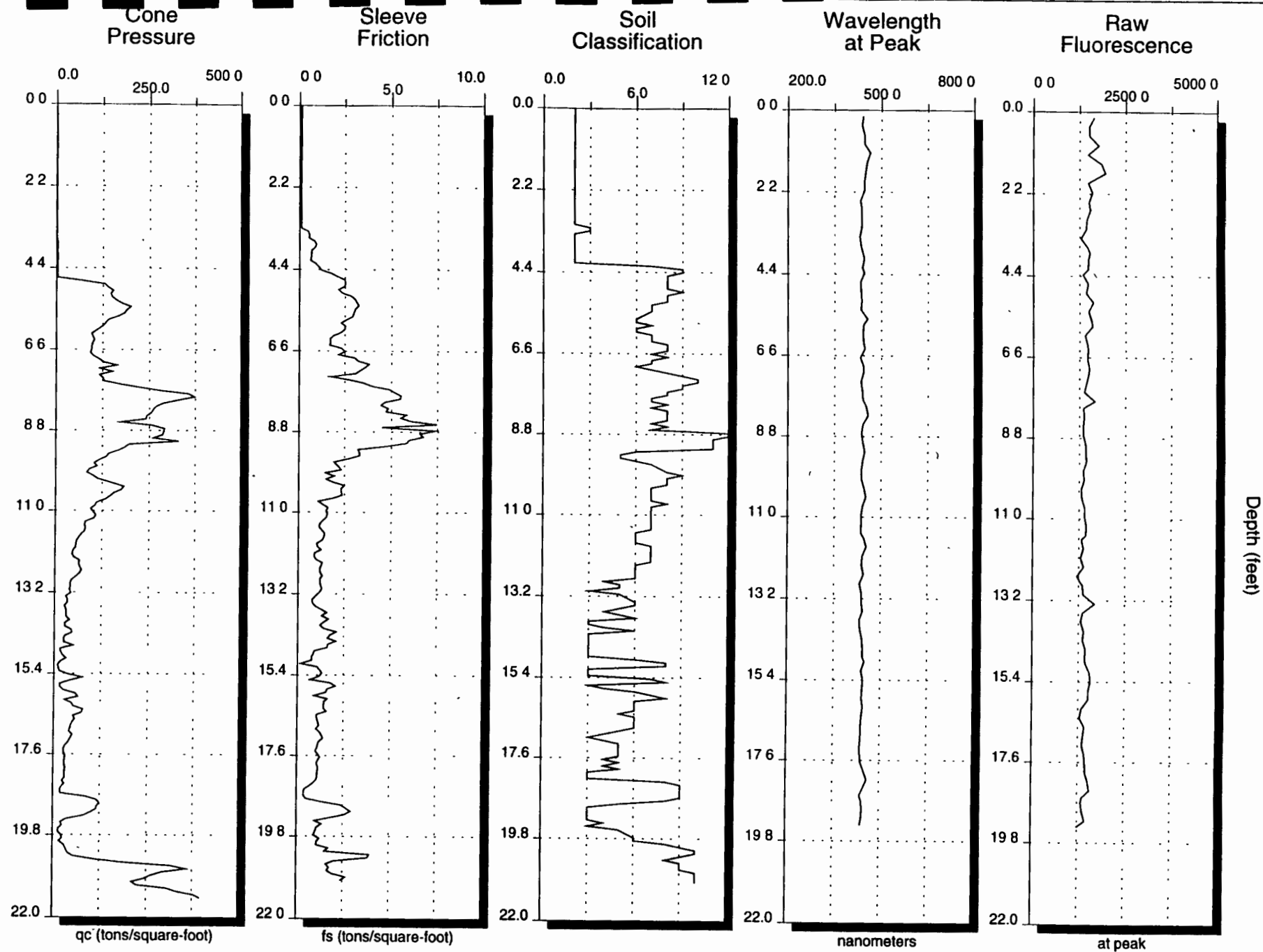
Date: 08-22-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5403.PSH

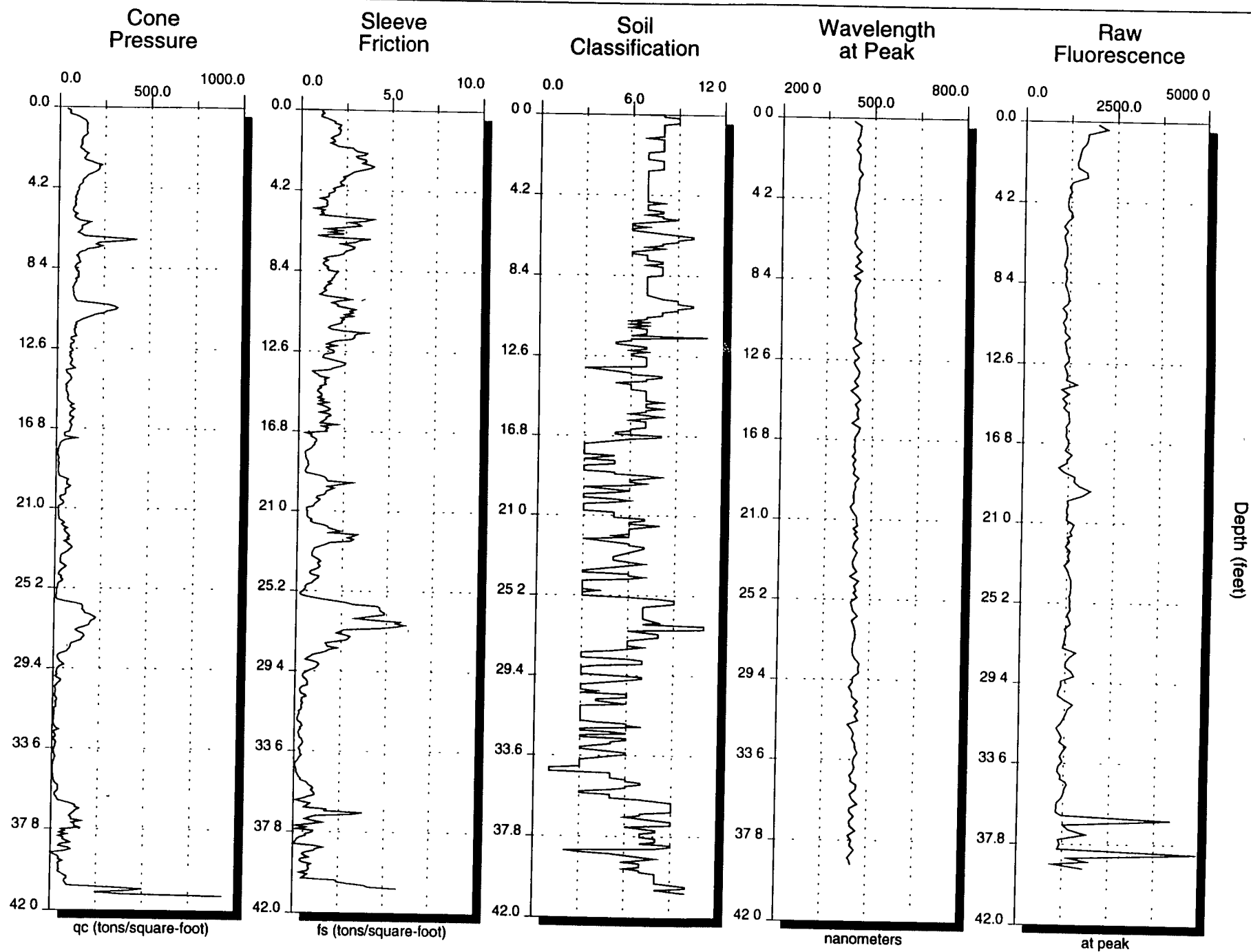
Probe: C:\BASIC71\DATA\PROBE12B.PRB

Calibration: C:\BASIC71\DATA\AUG23DFM.CAL



Time: 09:25:43
Date: 08-23-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5404.PSH
Probe: C:\BASIC71\DATA\PROBE10.PR
Calibration: C:\BASIC71\DATA\AUG23DFM.CAL



Time: 10:23:37

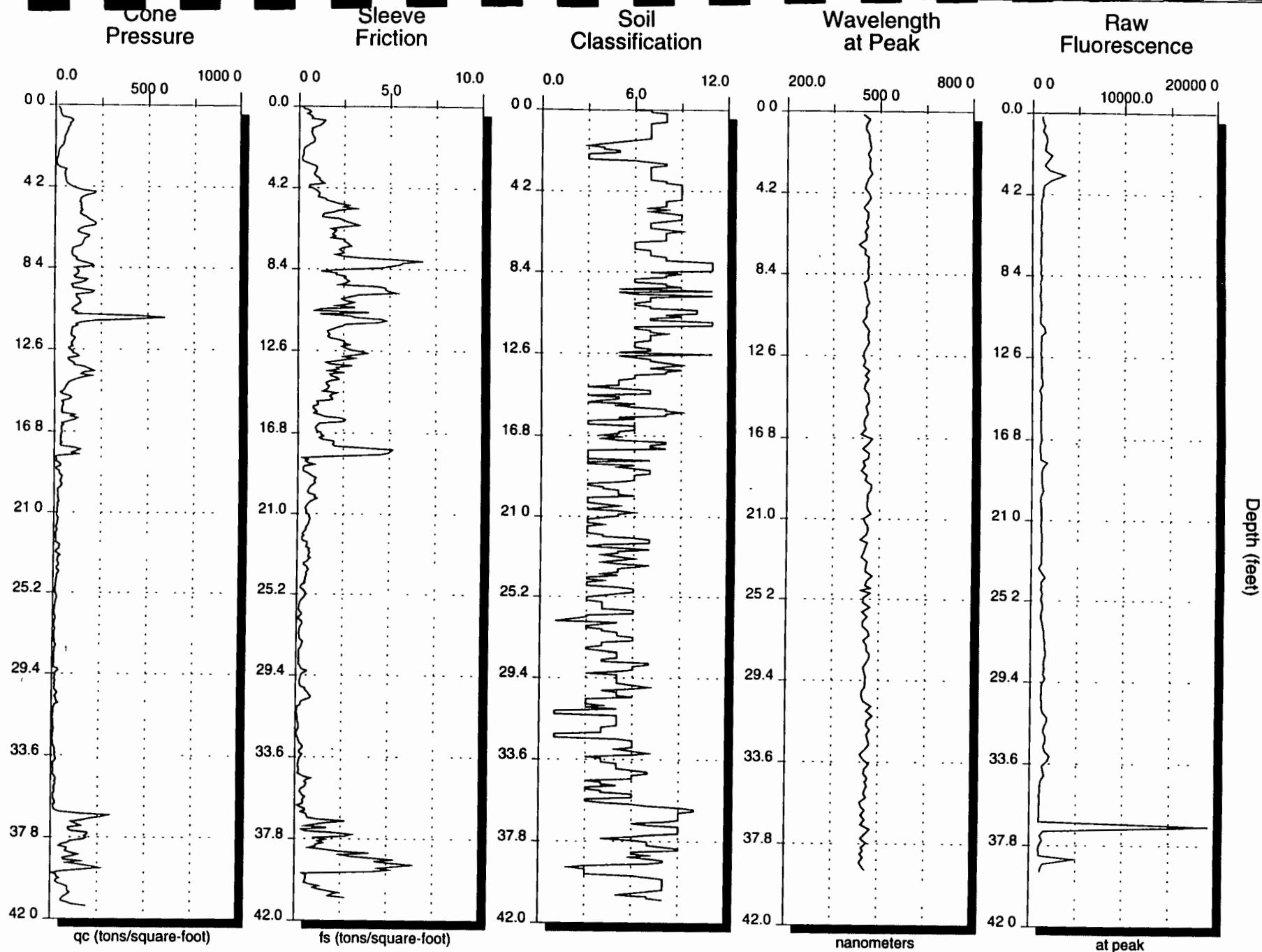
Date: 08-23-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5405.PSH

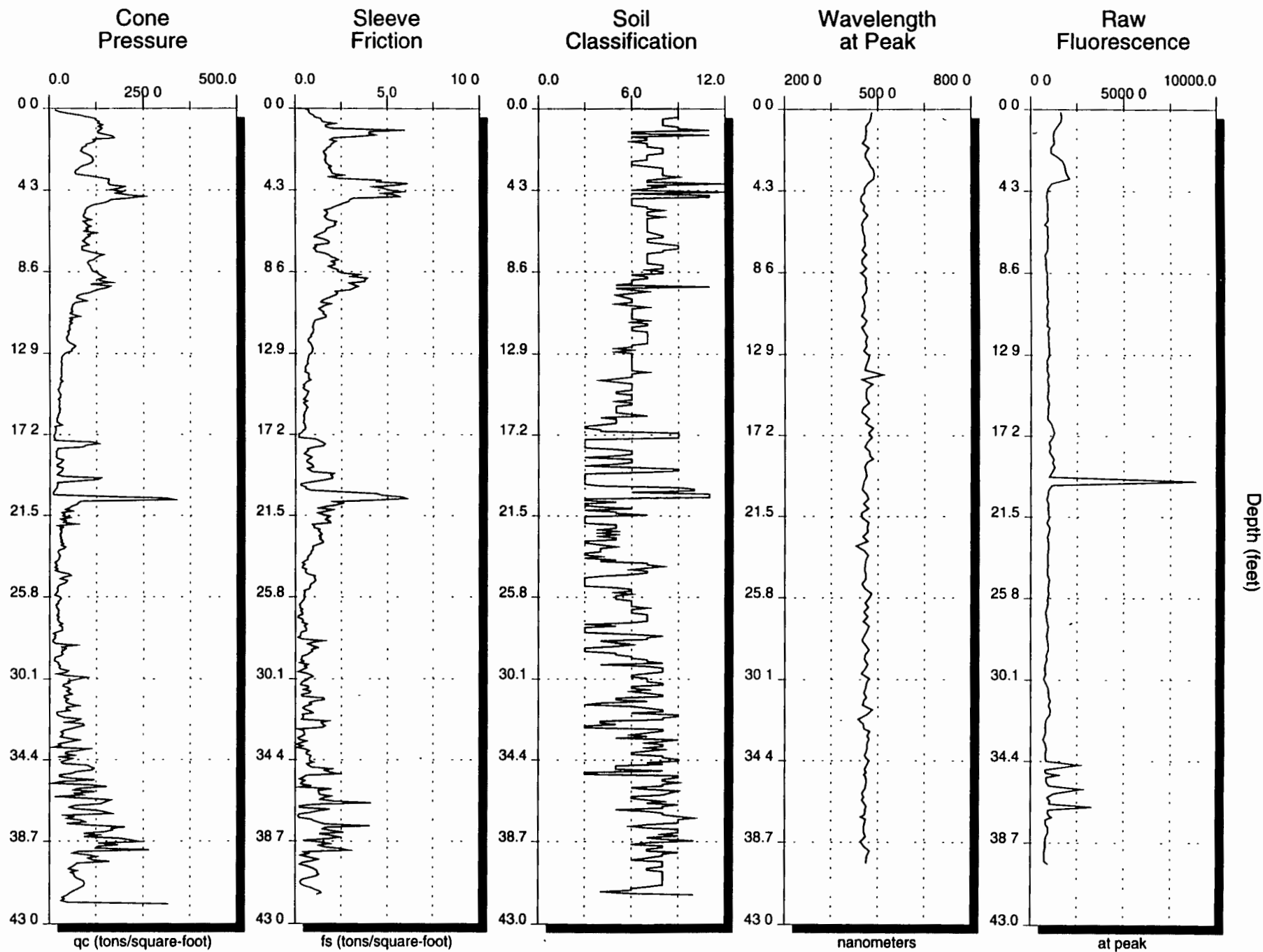
Probe: C:\BASIC71\DATA\PROBE10.PR

Calibration: C:\BASIC71\DATA\AUG23DFM.CAL



Time: 12:08:53
Date: 08-23-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5406.PSH
Probe: C:\BASIC71\DATA\PROBE10.PR
Calibration: C:\BASIC71\DATA\AUG23DFM.CAL



Time: 13:51:16

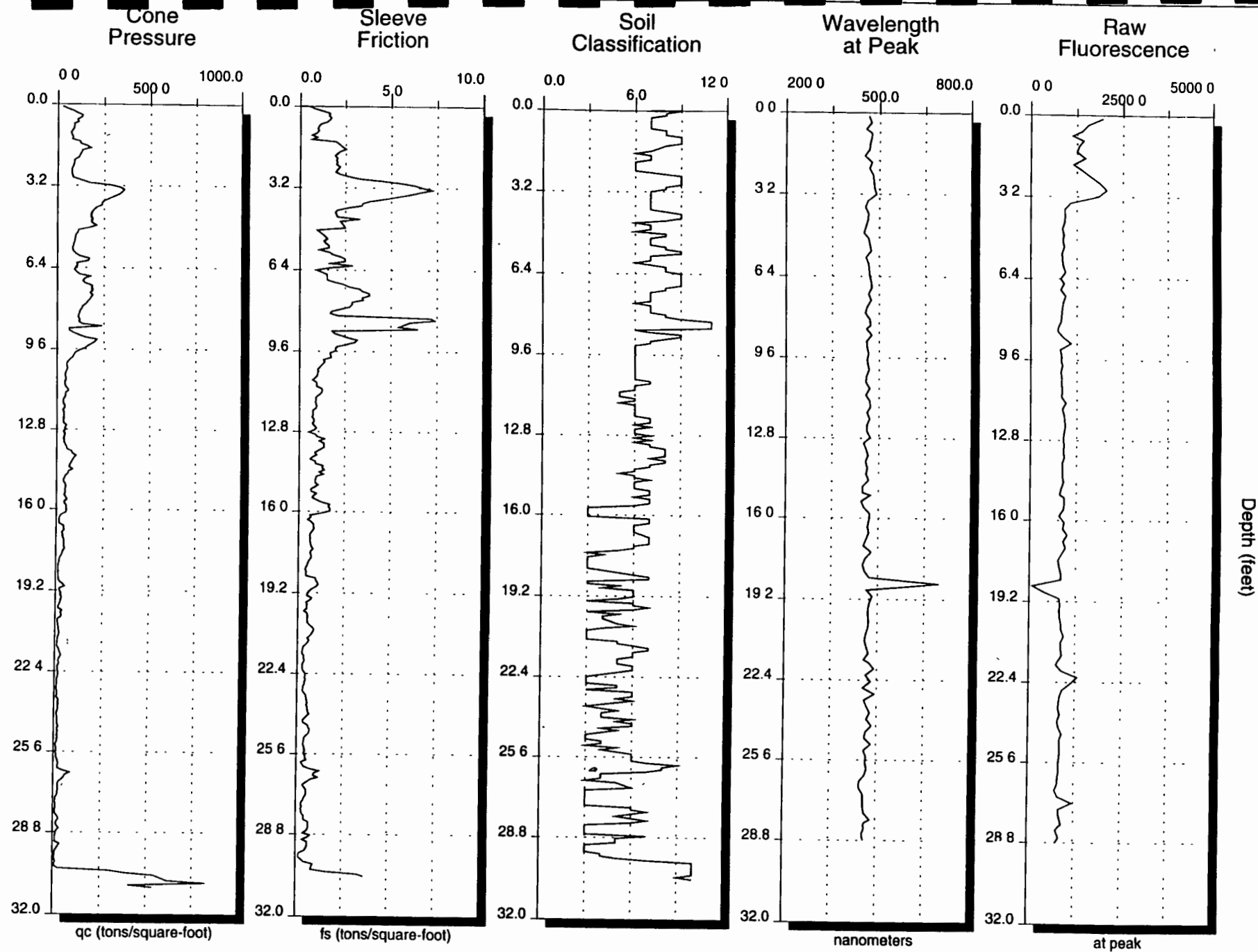
Date: 08-23-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5407.PSH

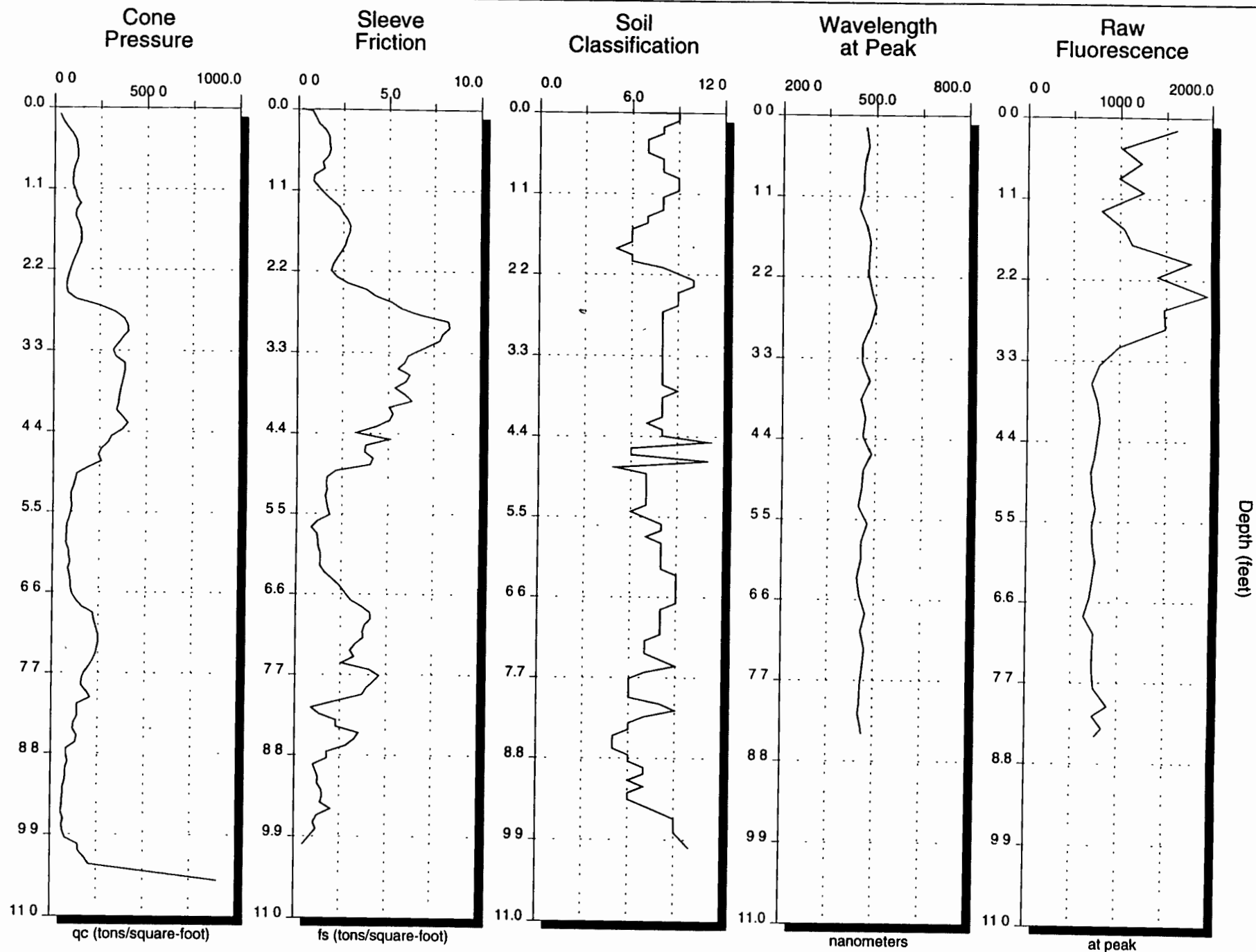
Probe: C:\BASIC71\DATA\PROBE10.PRB

Calibration: C:\BASIC71\DATA\AUG23DFM.CAL



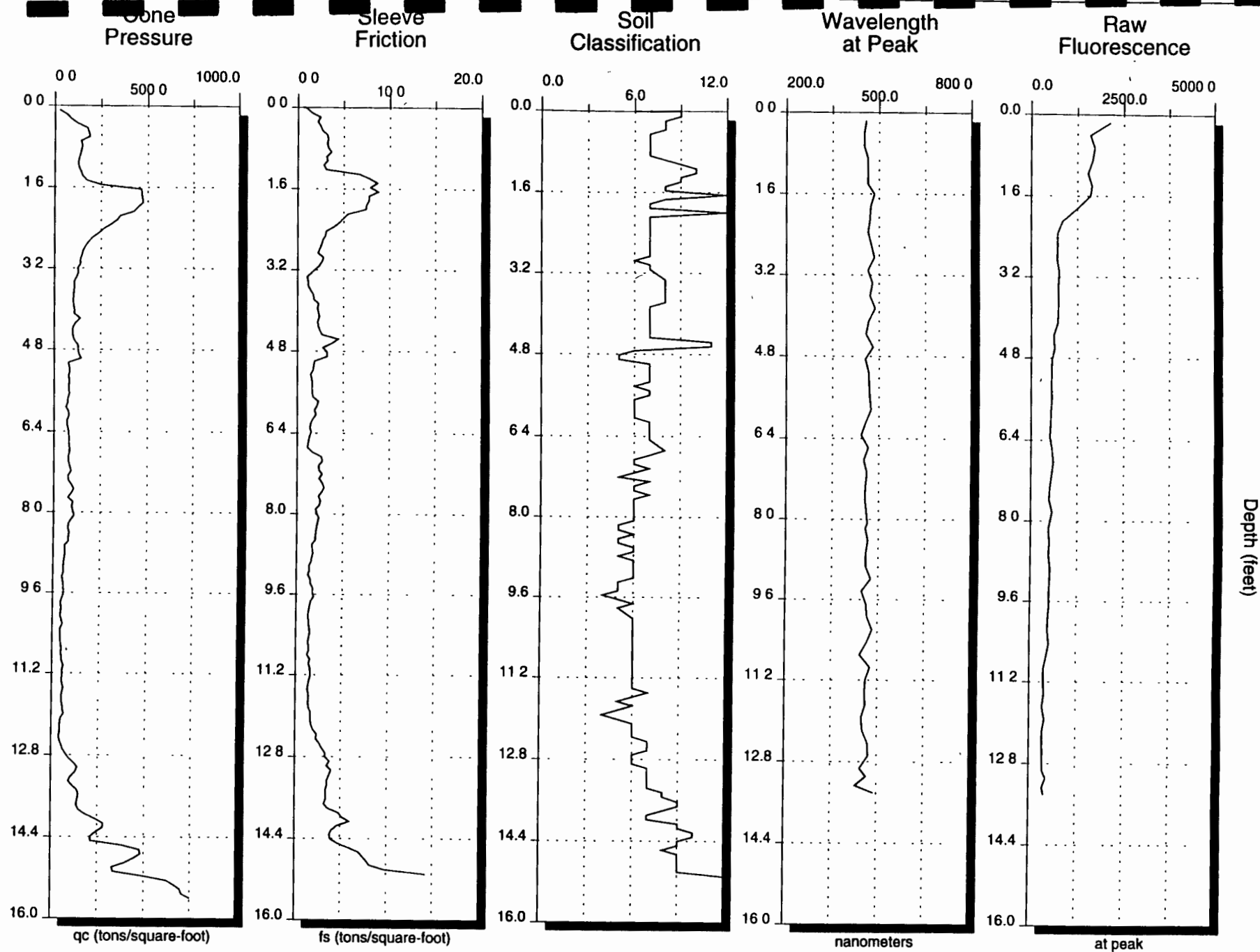
Time: 14:57:39
Date: 08-23-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5408.PSH
Probe: C:\BASIC71\DATA\PROBE10.PR8
Calibration: C:\BASIC71\DATA\AUG23DFM.CAL



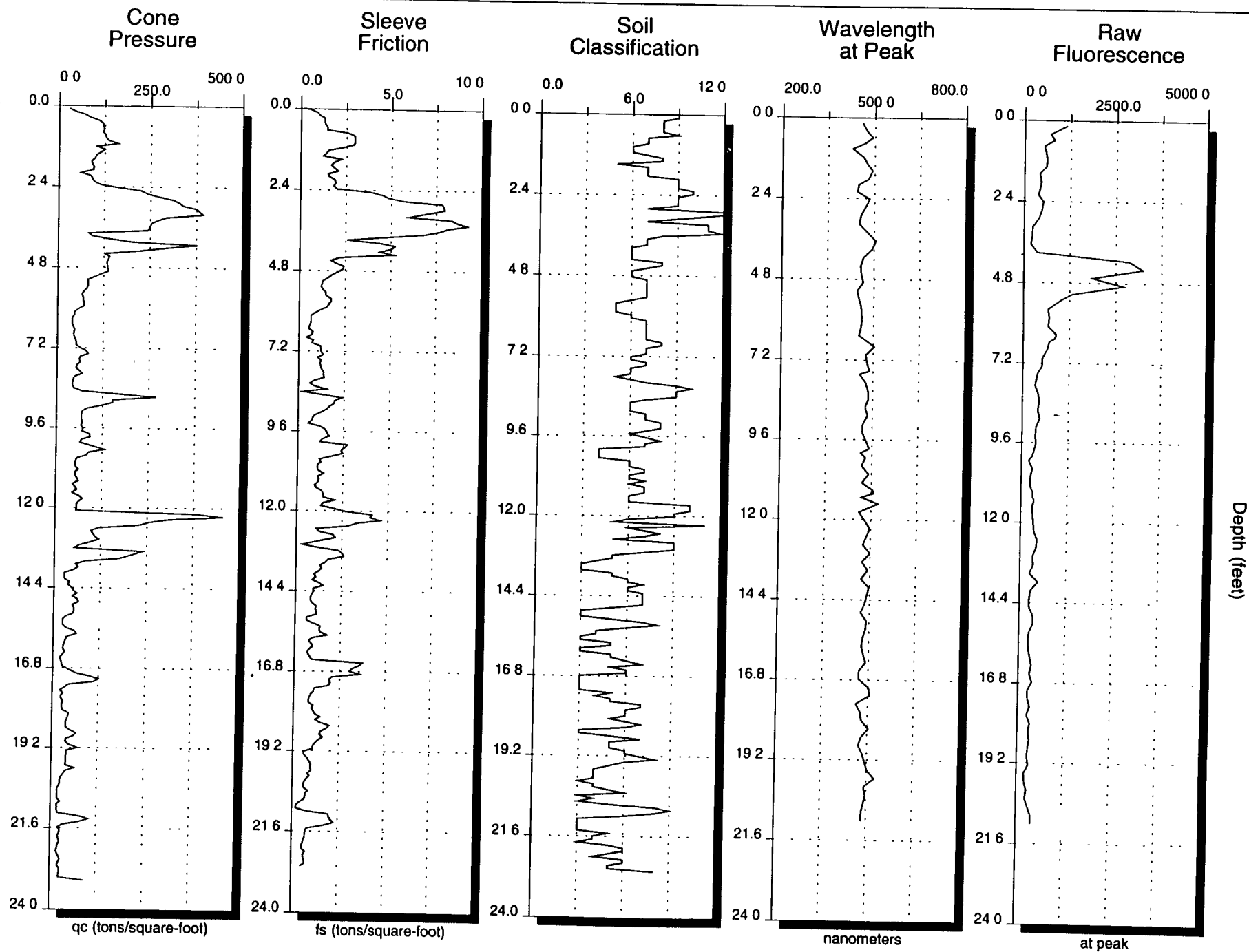
Time: 16:16:20
Date: 08-23-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5409.PSH
Probe: C:\BASIC71\DATA\PROBE10.PR
Calibration: C:\BASIC71\DATA\AUG23DFM.CAL



Time: 16:52:33
Date: 08-23-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5410.PSH
Probe: C:\BASIC71\DATA\PROBE10.PR
Calibration: C:\BASIC71\DATA\AUG24DFM.CAL



Time: 08:51:12

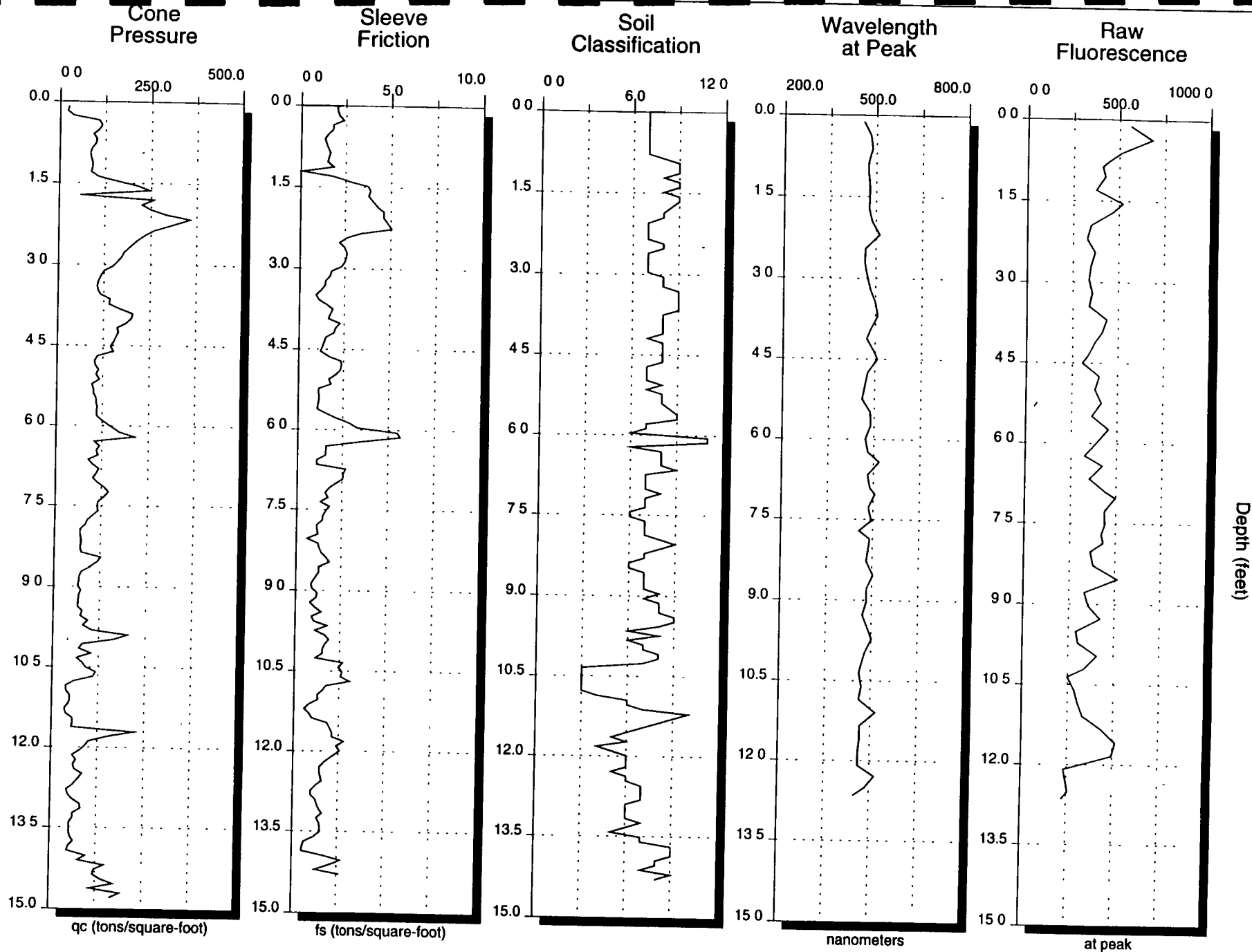
Date: 08-26-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5701.PSH

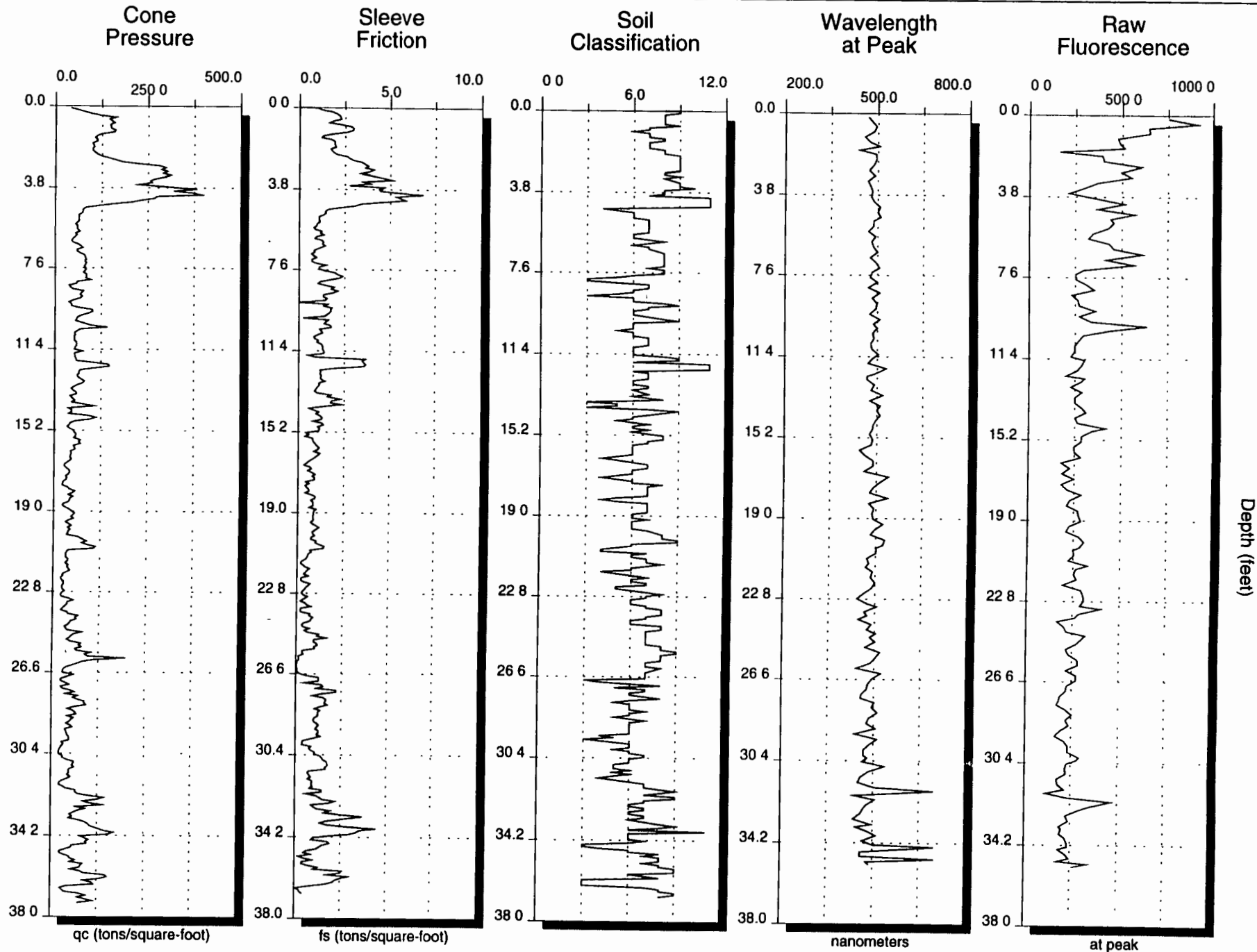
Probe: C:\BASIC71\DATA\PROBE14B.PR

Calibration: C:\BASIC71\DATA\AUG25DEM.CAL



Time: 09:34:07
Date: 08-26-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5702.PSH
Probe: C:\BASIC71\DATA\PROBE14B.PR
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 10:51:08

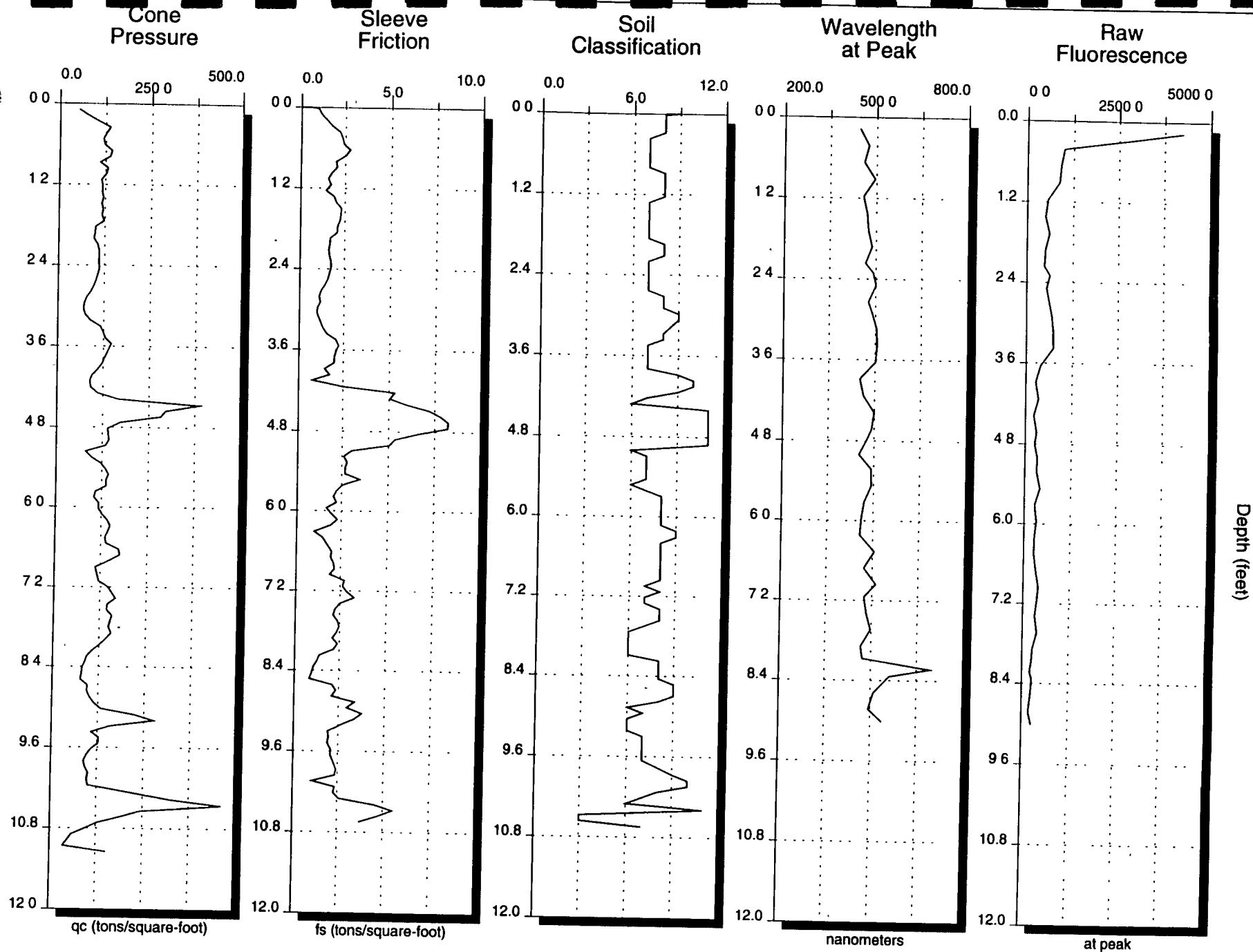
Date: 08-26-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5703.PSH

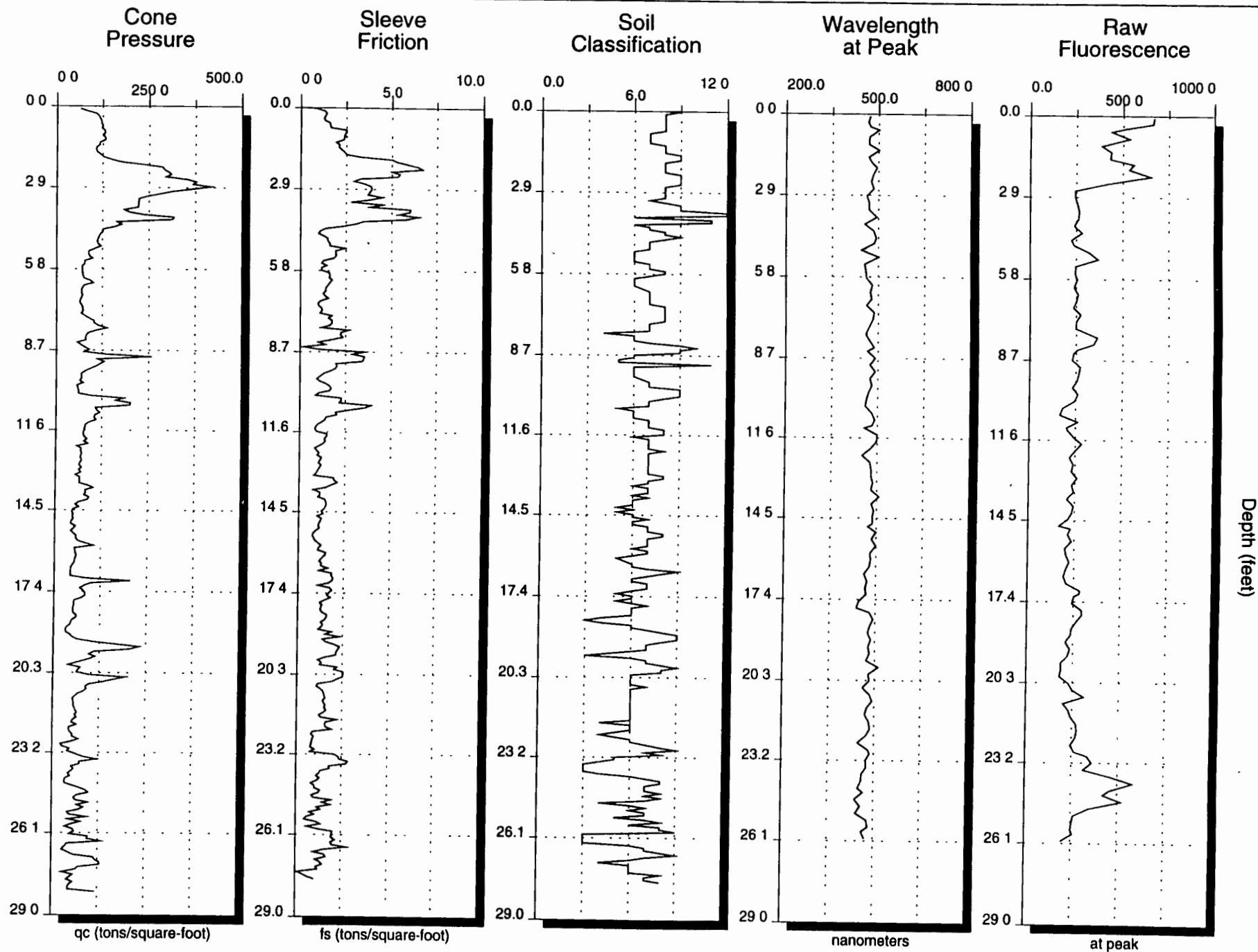
Probe: C:\BASIC71\DATA\PROBE14B.PR8

Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 11:44:16
Date: 08-26-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5704.PSH
Probe: C:\BASIC71\DATA\PROBE14B.PR
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 14:02:13

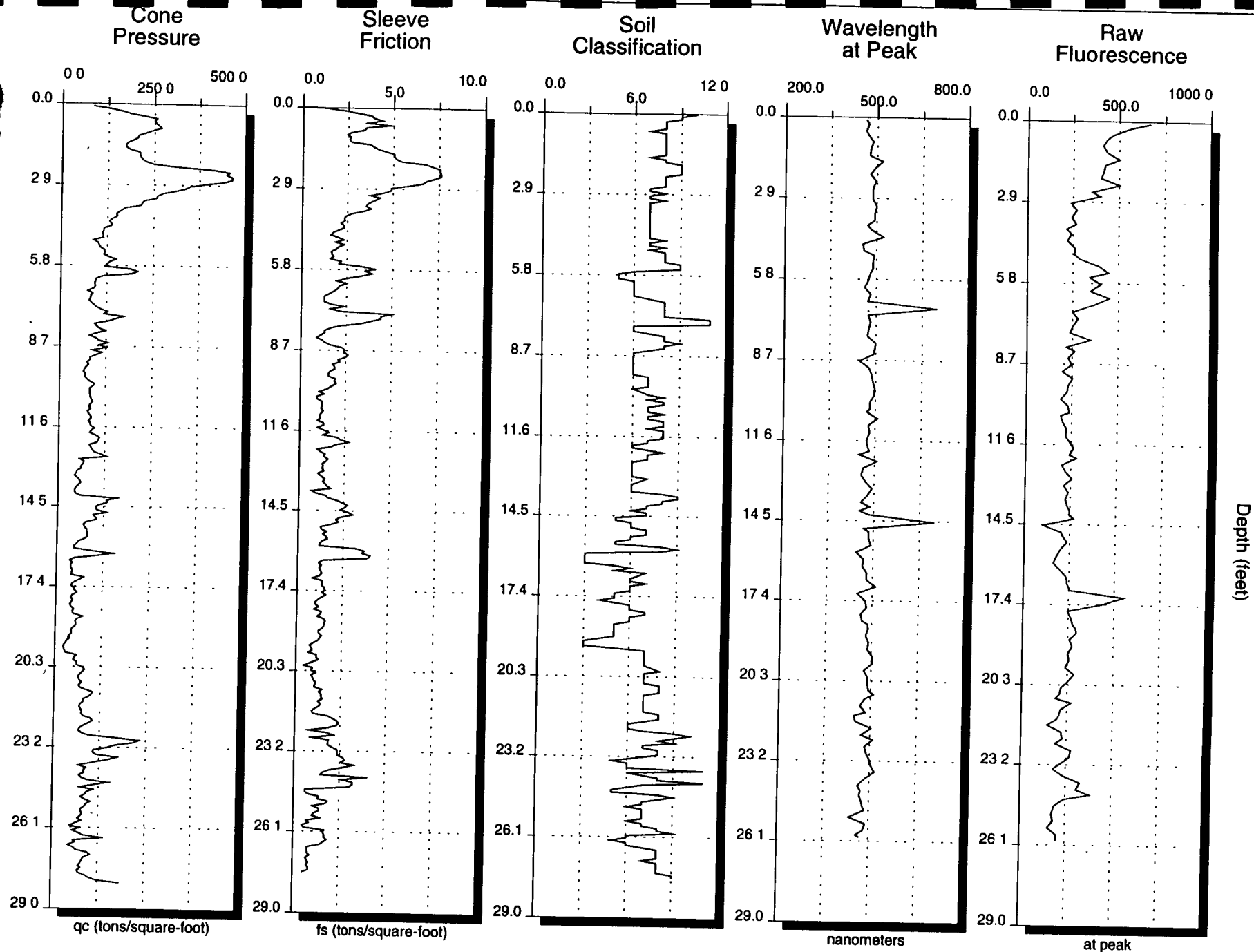
Date: 08-26-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5705.PSH

Probe: C:\BASIC71\DATA\PROBE14B.PRB

Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 14:34:38

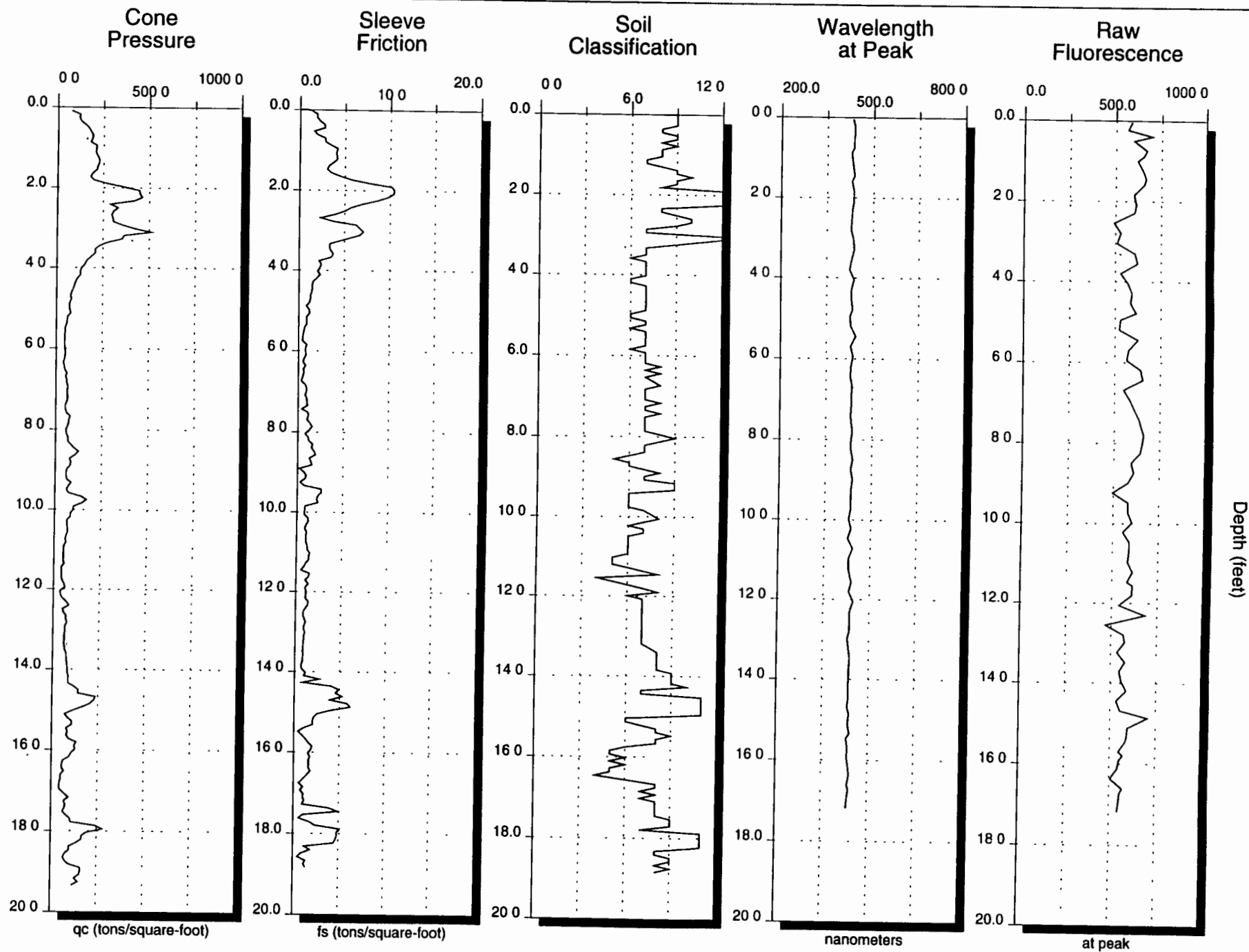
Date: 08-26-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5706.PSH

Probe: C:\BASIC71\DATA\PROBE14B.PR

Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 16:00:46

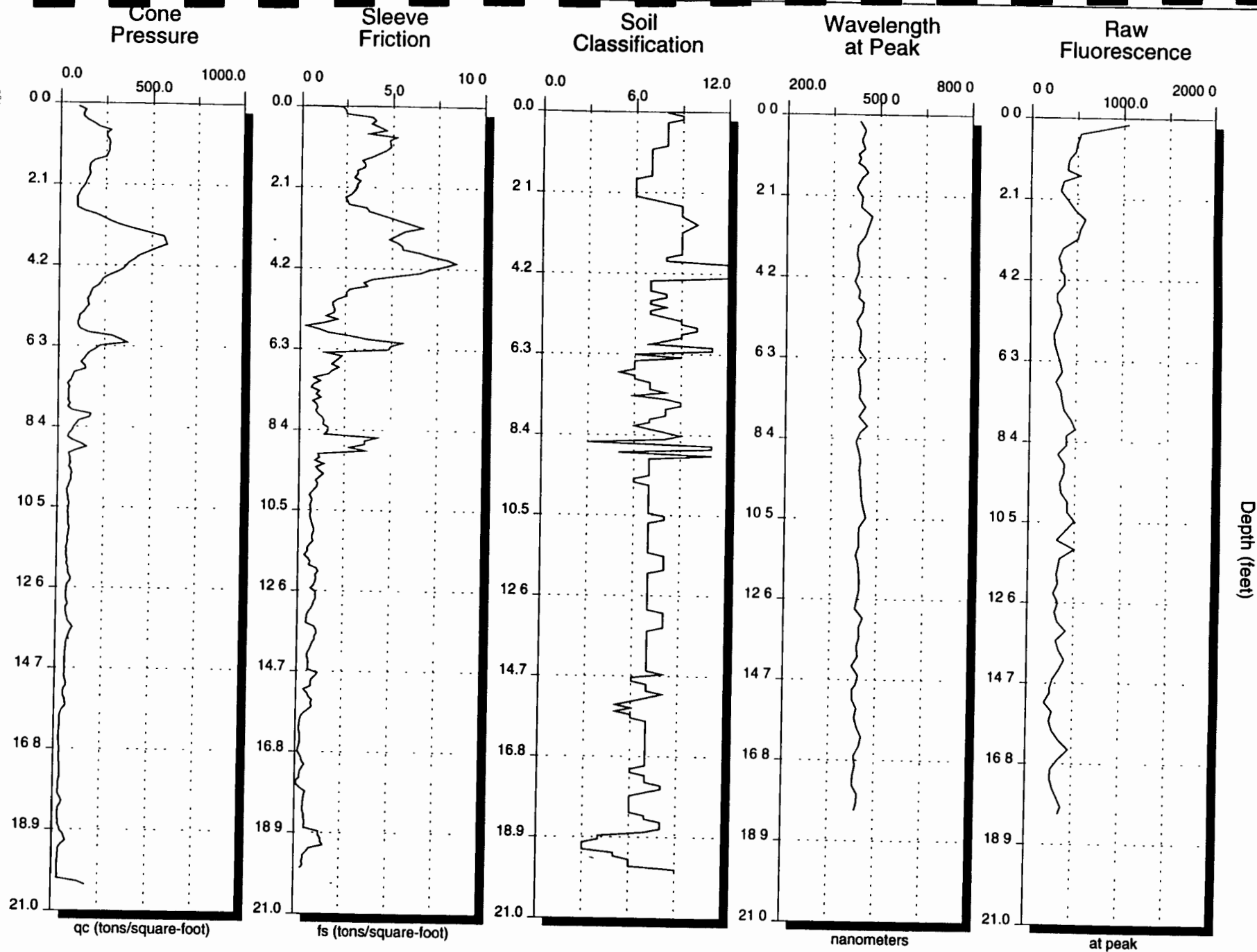
Date: 08-26-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5707.PSH

Probe: C:\BASIC71\DATA\PROBE14B.PR

Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 16:49:56

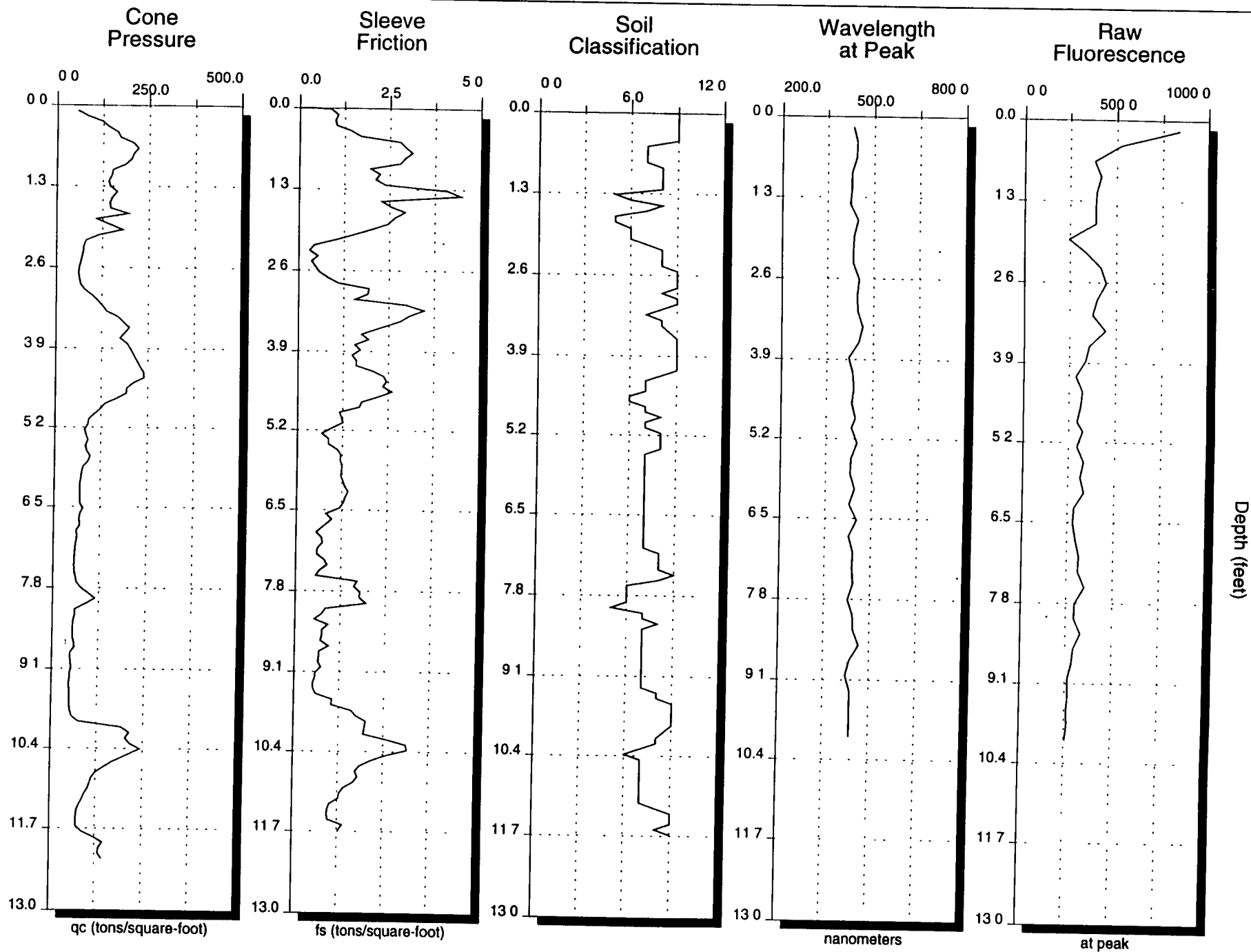
Date: 08-26-1995

Version: 1.0

Push: C:\BASIC71\DATA\TK5708.PSH

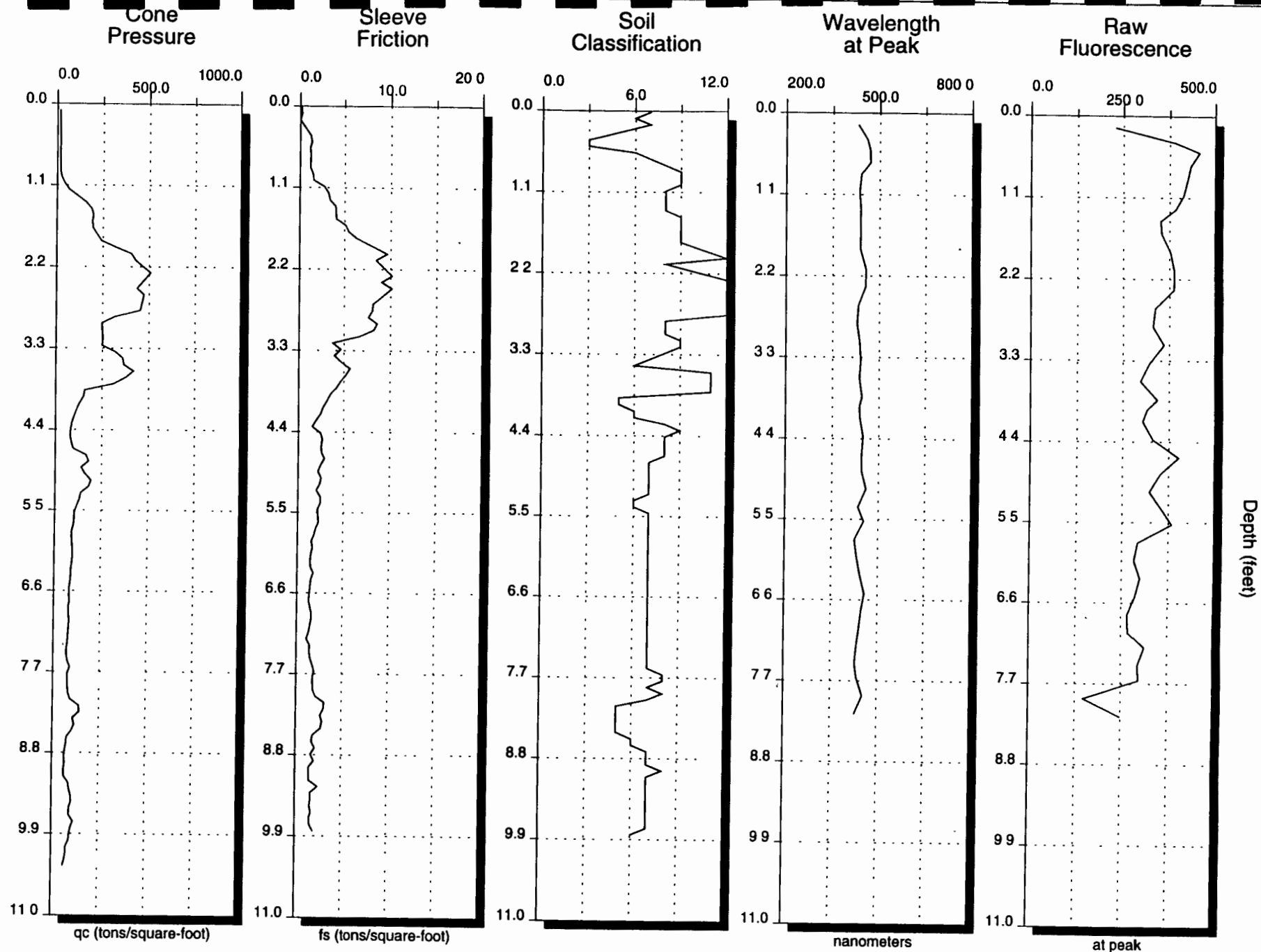
Probe: C:\BASIC71\DATA\PROBE14B.PR

Calibration: C:\BASIC71\DATA\AUG25DFM.CAL



Time: 17:27:43
Date: 08-26-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5709.PSH
Probe: C:\BASIC71\DATA\PROBE14B.PR
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL

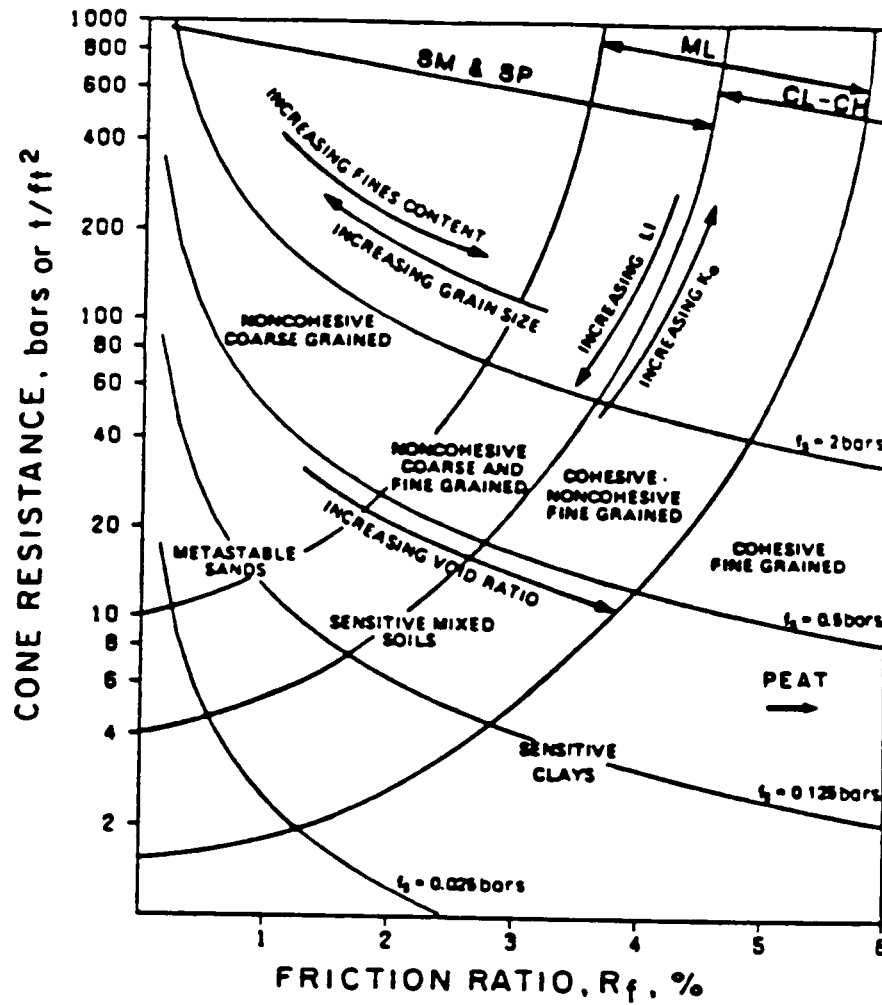


Time: 18:01:19
Date: 08-26-1995
Version: 1.0

Push: C:\BASIC71\DATA\TK5710.PSH
Probe: C:\BASIC71\DATA\PROBE14B.PR
Calibration: C:\BASIC71\DATA\AUG25DFM.CAL

APPENDIX E - SOIL CONVERSION CHART

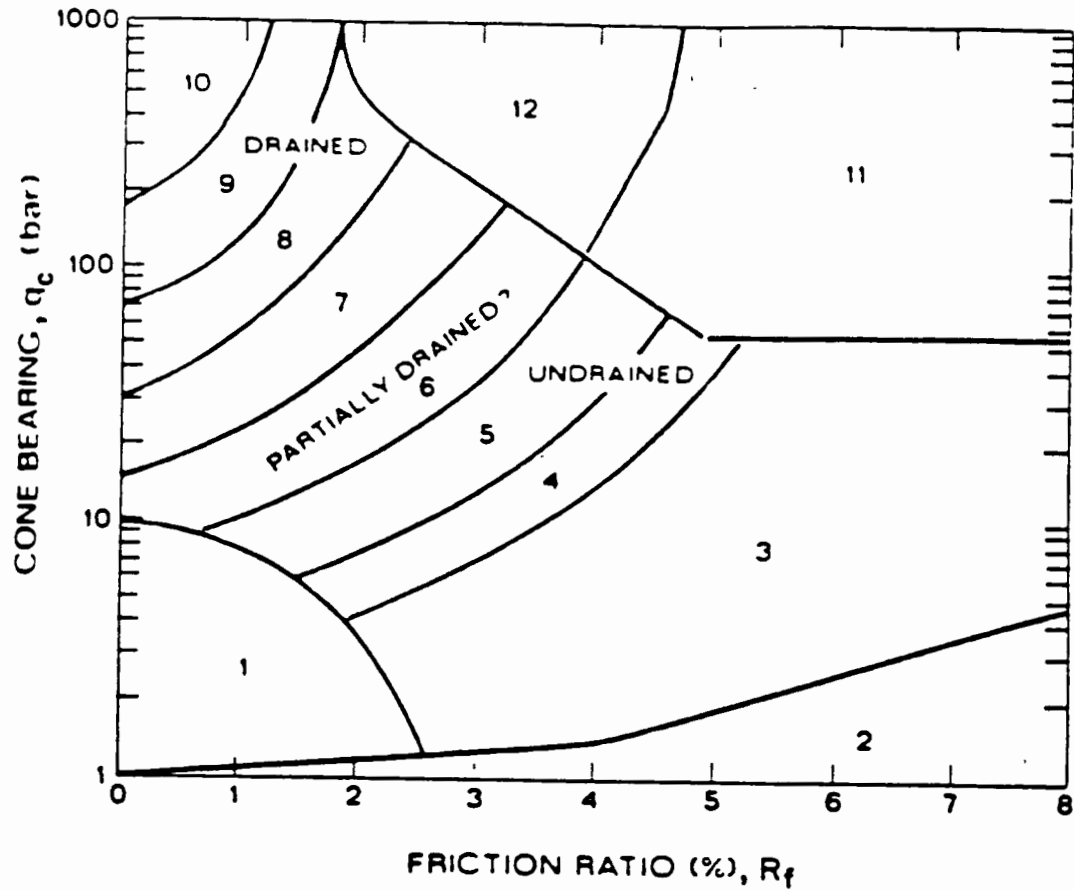
APPENDIX E - SOIL CONVERSION CHART



1 bar = 100 kPa \approx 1 kg/cm²

Figure E.1 - Soil Classification Chart for Standard Electronic Friction Cone (Adapted from Douglas and Olsen, 1981)

APPENDIX E - SOIL CONVERSION CHART



Zone	q_c/N	Soil Behaviour Type
1)	2	sensitive fine grained
2)	1	organic material
3)	1	clay
4)	1.5	silty clay to clay
5)	2	clayey silt to silty clay
6)	2.5	sandy silt to clayey silt
7)	3	silty sand to sandy silt
8)	4	sand to silty sand
9)	5	sand
10)	6	gravelly sand to sand
11)	1	very stiff fine grained (*)
12)	2	sand to clayey sand (*)

(*) overconsolidated or cemented

Figure E.2 - Simplified Soil Classification Chart for Standard Electronic Friction Cone (Roberston et al, 1986)

APPENDIX F - RAW DATA

TANK FARM 4

SCAPS LIF AND GEOTECHNICAL DATA

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id TK3801.CSV

North Coordinate (feet): 175845.55

East Coordinate (feet): 385194.26

Date Started: Saturday, September 09, 1995

Elevation (feet): 0

Time Started: 3:53 PM

Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	464	1561	clay	
0.41	468	1402	clay	
0.66	455	1175	clay	
0.91	457	884	clay	
1.16	472	912	clay	
1.41	466	733	clay	
1.66	462	828	clay	
1.91	457	898	clay	
2.16	468	1009	clay	
2.41	451	1054	clay	
2.66	468	910	clay	
2.92	441	1237	clay	
3.17	470	1116	clay	
3.42	457	1045	clay	
3.67	466	1064	clay	
3.92	462	955	clay	
4.18	483	1025	clay	
4.43	462	989	clay	
4.68	470	1006	clay	
4.90	464	1056	clay	
5.15	485	1023	clay	
5.40	438	2165	clay	
5.58	441	2039	clay	
5.83	453	1957	clay	
6.08	462	1982	clay	
6.33	466	1409	clay	
6.59	451	1104	clay	
6.84	476	1496	clay	
7.09	472	1661	clay	
7.34	466	1675	clay	
7.59	489	1749	silty sand to sandy silt	
7.85	470	1467	silty sand to sandy silt	
8.06	472	1169	silty sand to sandy silt	
8.32	468	1402	sandy silt to silty clay	
8.56	468	1352	silty sand to sandy silt	
8.81	466	1310	silty sand to sandy silt	
9.07	441	1306	silty sand to sandy silt	
9.33	481	1298	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id TK3801.CSV

North Coordinate (feet): 175845.55

Date Started: Saturday, September 09, 1995

East Coordinate (feet): 385194.26

Time Started: 3:53 PM

Elevation (feet): 0

Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.59	485	1310	sandy silt to silty clay	
9.85	476	1313	clayey silt to silty clay	
10.10	481	1281	sandy silt to silty clay	
10.36	470	1321	silty sand to sandy silt	
10.61	470	1257	silty sand to sandy silt	
10.86	460	1318	sandy silt to silty clay	
11.12	485	1282	silty sand to sandy silt	
11.35	468	1346	sandy silt to silty clay	
11.59	462	1315	silty sand to sandy silt	
11.85	447	1330	silty sand to sandy silt	
12.05	468	1388	silty sand to sandy silt	
12.31	466	1368	sand to silty sand	
12.81	466	1371	sandy silt to silty clay	
13.08	464	1366	silty sand to sandy silt	
13.33	472	1307	silty sand to sandy silt	
13.58	455	1259	silty sand to sandy silt	
13.84	453	1276	sandy silt to silty clay	
14.09	474	1189	sand	
14.34	470	1259	clayey silt to silty clay	
14.60	447	803	very stiff fine grained	
14.85	466	908	sandy silt to silty clay	
15.10	462	843	sandy silt to silty clay	
15.35	464	887	clayey silt to silty clay	
15.61	453	908	sandy silt to silty clay	
15.86	460	984	silty sand to sandy silt	
16.13	462	1000	sandy silt to silty clay	
16.38	449	921	silty sand to sandy silt	
16.55	472	854	silty sand to sandy silt	
16.80	441	876	clayey silt to silty clay	
17.05	489	792	clay	
17.31	485	775	clay	
17.57	495	735	sandy silt to silty clay	
17.83	476	598	clayey silt to silty clay	
17.93	464	626	clay	
18.18	462	617	clay	
18.43	476	653	clay	
18.70	483	677	silty sand to sandy silt	
18.95	453	688	clayey silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id TK3801.CSV North Coordinate (feet): 175845.55
 Date Started: Saturday, September 09, 1995 East Coordinate (feet): 385194.26
 Time Started: 3.53 PM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.21	476	774	clay	
19.46	468	857	clay	
19.71	489	950	clay	
19.97	483	1154	silty clay to clay	
20.48	470	792	clay	
20.74	481	756	clay	
20.99	438	635	clay	
21.21	485	772	clay	
21.46	462	836	sandy silt to silty clay	
21.71	460	815	sandy silt to silty clay	
21.96	476	783	clayey silt to silty clay	
22.21	470	730	clay	
22.47	468	842	clay	
22.64	483	747	clay	
22.89	462	772	clay	
23.15	472	887	clay	
23.65	487	778	clayey silt to silty clay	
23.91	481	1408	clay	
24.17	470	1279	clay	
24.40	466	1098	clay	
24.51	474	1029	sand to silty sand	
24.76	487	860	clay	
25.02	460	871	clay	
25.27	472	972	clay	
25.52	487	888	sandy silt to silty clay	
25.77	483	907	clay	
26.03	502	4056	silty clay to clay	
26.28	512	8520	clayey silt to silty clay	
26.52	519	4799	clay	
27.02	508	14641	clay	
27.12	506	26484	silty clay to clay	
27.23	508	19258	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK3802.CSV
 Date Started: Saturday, September 09, 1995
 Time Started: 5:00 PM
 North Coordinate (feet): 175978.94
 East Coordinate (feet): 385220.96
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	455	2619	clay	
0.42	460	2638	clay	
0.67	464	1935	clay	
0.92	460	2100	clay	
1.18	466	2250	clay	
1.54	483	1743	clay	
1.79	470	1753	clay	
2.05	466	1532	clay	
2.30	455	1371	clay	
2.56	466	1291	clay	
2.82	457	1187	clay	
3.07	428	1144	clay	
3.24	438	1178	clay	
3.74	460	1419	clay	
3.99	449	1248	clay	
4.25	455	1268	clay	
4.50	457	1272	clay	
4.75	470	1239	clay	
5.00	449	1255	clay	
5.25	462	1265	clay	
5.50	460	1262	clay	
5.75	464	1221	clay	
6.01	462	1335	clay	
6.26	466	1342	clay	
6.50	460	1312	clay	
7.01	449	1296	clay	
7.27	474	1292	clay	
7.42	466	1402	clay	
7.67	455	1349	clay	
7.81	462	1335	clay	
8.06	468	1325	clay	
8.31	453	1373	clay	
8.56	470	1336	clay	
8.80	457	1258	clay	
9.06	445	1264	clay	
9.56	453	2049	silty sand to sandy silt	
9.80	457	1989	sand to silty sand	
10.32	466	1285	silty sand to sandy silt	

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id TK3802.CSV North Coordinate (feet): 175978.94
 Date Started: Saturday, September 09, 1995 East Coordinate (feet): 385220.96
 Time Started: 5:00 PM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.57	451	1319	silty sand to sandy silt	
10.83	468	1275	sand to silty sand	
11.08	449	1308	sand to silty sand	
11.33	455	1275	silty sand to sandy silt	
11.58	436	1269	silty sand to sandy silt	
11.83	462	1228	sand to silty sand	
12.08	445	1138	sand to silty sand	
12.33	462	1150	silty sand to sandy silt	
12.59	466	1204	silty sand to sandy silt	
12.84	438	1187	silty sand to sandy silt	
13.08	451	1172	silty sand to sandy silt	
13.58	447	1202	silty sand to sandy silt	
13.84	472	1251	sand to silty sand	
14.09	432	1254	silty sand to sandy silt	
14.34	462	1220	sandy silt to silty clay	
14.58	464	1254	clayey silt to silty clay	
14.84	455	1242	sandy silt to silty clay	
15.31	453	1351	silty sand to sandy silt	
15.55	451	1245	clayey silt to silty clay	
15.80	447	1227	clay	
16.05	449	1375	clay	
16.20	462	1268	clay	
16.33	451	1358	clay	
16.48	455	1609	clay	
16.58	466	1674	clay	
16.82	447	1532	clay	
17.07	472	1393	sand to silty sand	
17.16	460	1288	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK3803.CSV
 Date Started: Saturday, September 09, 1995
 Time Started: 6:06 PM
 North Coordinate (feet): 175921.4
 East Coordinate (feet): 385170.11
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	700	65	silty clay to clay	
0.42	700	84	silty clay to clay	
0.64	700	74	silty clay to clay	
0.89	455	1006	silty clay to clay	
1.14	464	756	silty clay to clay	
1.39	453	848	silty clay to clay	
1.90	445	759	silty clay to clay	
2.15	460	835	silty clay to clay	
2.31	460	765	silty clay to clay	
2.56	462	983	silty clay to clay	
3.06	464	755	silty clay to clay	
3.31	466	856	silty clay to clay	
3.56	466	1324	silty clay to clay	
3.81	470	869	silty clay to clay	
4.06	462	1001	silty clay to clay	
4.82	449	850	silty clay to clay	
5.06	464	982	silty clay to clay	
5.31	472	835	silty clay to clay	
5.57	464	776	silty clay to clay	
5.82	445	748	silty clay to clay	
6.07	455	815	silty clay to clay	
6.32	447	799	clay	
6.49	460	824	silty clay to clay	
6.74	445	703	silty clay to clay	
6.99	457	884	silty clay to clay	
7.25	464	882	silty clay to clay	
7.50	468	835	silty clay to clay	
7.75	464	908	silty clay to clay	
8.00	460	782	clay	
8.26	460	824	clay	
8.51	460	900	clay	
8.76	457	782	clay	
9.01	466	1101	clay	
9.26	447	862	clay	
9.52	466	1022	clay	
9.77	466	949	silty clay to clay	
10.02	466	964	clay	
10.27	470	1026	clay	

SCAPS LIF and G otechnical Data (Tank Farm 4)

Push Id TK3803.CSV

N rth Coordinate (feet): 175921.4

East Coordinate (feet): 385170.11

Date Started: Saturday, September 09, 1995

Elevation (feet): 0

Time Started: 6:06 PM

Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.53	472	1006	clay	
10.66	466	755	clay	
10.91	472	749	clay	
11.16	447	778	clay	
11.41	470	711	clay	
11.56	451	778	clay	
11.68	457	730	clay	
12.08	443	810	clay	
12.33	453	789	clay	
12.59	453	830	clay	
12.95	468	1137	clay	
13.19	464	909	clay	
13.30	460	955	silty clay to clay	
13.54	472	1118	sand to silty sand	
13.79	472	1540	sandy silt to silty clay	
13.90	455	824	sandy silt to silty clay	
14.15	436	797	clayey silt to silty clay	
14.41	472	756	clayey silt to silty clay	
14.67	451	730	silty clay to clay	
14.92	457	569	sandy silt to silty clay	
15.18	460	600	silty sand to sandy silt	
15.43	445	710	clayey silt to silty clay	
15.68	460	731	silty sand to sandy silt	
15.93	447	671	silty sand to sandy silt	
16.19	443	723	clay	
16.45	462	534	clay	
16.70	451	491	silty clay to clay	
16.95	449	625	silty sand to sandy silt	
17.19	476	566	sandy silt to silty clay	
17.43	438	508	clay	
17.69	457	628	silty clay to clay	
17.95	464	633	sandy silt to silty clay	
18.20	472	454	silty clay to clay	
18.45	464	447	clayey silt to silty clay	
18.67	472	467	silty sand to sandy silt	
18.86	470	526	clay	
19.12	460	540	silty clay to clay	
19.64	453	741	silty clay to clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id TK3803.CSV North Coordinate (feet): 175921.4
 Date Started: Saturday, September 09, 1995 East Coordinate (feet): 385170.11
 Time Started: 6:06 PM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.89	451	569	clay	
20.09	445	764	clay	
20.34	455	708	sandy silt to silty clay	
20.49	464	462	sandy silt to silty clay	
20.74	457	449	silty sand to sandy silt	
21.00	460	491	sand	
21.15	455	490	sand to silty sand	
21.41	466	515	sandy silt to silty clay	
21.57	460	513	clayey silt to silty clay	
21.77	449	527	clay	
22.02	447	511	clay	
22.28	470	523	sand to silty sand	
22.53	457	524	clay	
22.79	457	518	clay	
22.99	436	495	clay	
23.21	447	558	sandy silt to silty clay	
23.46	468	556	sandy silt to silty clay	
23.71	466	557	clayey silt to silty clay	
23.96	487	572	sand to silty sand	
24.21	468	574	sandy silt to silty clay	
24.47	460	584	clayey silt to silty clay	
24.72	470	549	clay	
24.97	441	596	sand to silty sand	
25.23	470	819	sand	
25.49	453	639	clay	
25.75	455	785	clay	
26.01	445	723	sandy silt to silty clay	
26.26	485	1028	silty sand to sandy silt	
26.52	474	1245	clayey silt to silty clay	
26.77	476	1444	clayey silt to silty clay	
27.02	487	2842	clayey silt to silty clay	
27.11	504	3767	silty clay to clay	
27.36	487	5326	clay	
27.62	502	4490	sandy silt to silty clay	
27.88	485	2552	clay	
28.13	487	1451	clay	
28.38	468	754	clay	
28.64	447	669	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK3803.CSV	North Coordinate (feet):	175921.4
Date Started:	Saturday, September 09, 1995	East Coordinate (feet):	385170.11
Time Started:	6.06 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
28.89	466	605	sandy silt to silty clay	
29.15	481	3380	sandy silt to silty clay	
29.66	485	21581	clay	
29.92	502	29719	clayey silt to silty clay	
30.17	504	10701	clayey silt to silty clay	
30.34	498	15114	silty clay to clay	
30.59	483	3287	sandy silt to silty clay	
30.80	502	4611	clayey silt to silty clay	
31.07	508	3991	sandy silt to silty clay	
31.31	504	4735	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK3804.CSV	North Coordinate (feet):	175869.93
Date Started:	Saturday, September 09, 1995	East Coordinate (feet):	385311.79
Time Started:	7:11 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.27	483	1015	clay	
0.52	462	3711	clay	
0.77	445	1894	clay	
1.03	457	1466	clay	
1.26	453	1102	clay	
1.67	453	714	clay	
1.93	455	930	clay	
2.69	472	900	clay	
2.95	464	794	clay	
3.21	457	887	clay	
3.72	464	843	clay	
3.97	462	795	clay	
4.23	453	713	clay	
4.48	460	692	clay	
4.73	468	699	clay	
4.98	453	631	clay	
5.24	449	622	clay	
5.50	455	583	silty clay to clay	
5.76	464	600	silty clay to clay	
6.02	466	628	silty clay to clay	
6.28	453	613	silty clay to clay	
6.54	453	603	clay	
6.79	457	655	clay	
7.04	464	679	clay	
7.30	443	553	clay	
7.56	447	642	clay	
7.82	466	665	clay	
8.00	438	638	clay	
8.24	460	640	clay	
8.50	472	666	clay	
8.76	445	732	clay	
8.88	460	924	clay	
9.09	455	673	clay	
9.34	432	551	clay	
9.60	457	677	clay	
9.86	464	620	clay	
10.12	455	718	clay	
10.38	453	599	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK3804.CSV	North Coordinate (feet):	175869.93
Date Started:	Saturday, September 09, 1995	East Coordinate (feet):	385311.79
Time Started:	7:11 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.63	472	532	silty clay to clay	
10.88	464	507	silty sand to sandy silt	
11.14	449	532	sand	
11.29	455	539	silty sand to sandy silt	
11.54	453	546	silty sand to sandy silt	
12.04	451	596	silty sand to sandy silt	
12.30	457	553	silty sand to sandy silt	
12.55	449	521	sand to silty sand	
12.81	453	497	silty sand to sandy silt	
13.07	447	524	sandy silt to silty clay	
13.82	466	543	sandy silt to silty clay	
14.07	451	524	sand to silty sand	
14.55	451	568	sandy silt to silty clay	
14.80	447	596	sand to silty sand	
15.05	464	566	silty sand to sandy silt	
15.31	460	592	sand	
15.57	455	569	clayey silt to silty clay	
15.83	455	573	sandy silt to silty clay	
16.08	462	602	sandy silt to silty clay	
16.33	441	616	sandy silt to silty clay	
16.59	443	548	silty sand to sandy silt	
16.83	466	621	silty sand to sandy silt	
17.09	438	540	sandy silt to silty clay	
17.34	464	594	clayey silt to silty clay	
17.60	445	492	sand	
17.84	457	604	silty sand to sandy silt	
18.09	457	567	sandy silt to silty clay	
18.35	464	609	sandy silt to silty clay	
18.60	451	617	silty sand to sandy silt	
18.85	449	675	sandy silt to silty clay	
19.11	453	650	silty sand to sandy silt	
19.36	472	621	silty sand to sandy silt	
19.61	455	610	sandy silt to silty clay	
19.85	462	530	silty clay to clay	
19.96	468	546	clayey silt to silty clay	
20.21	468	657	sandy silt to silty clay	
20.46	453	644	sandy silt to silty clay	
20.65	462	636	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK3804.CSV	North Coordinate (feet):	175869.93
Date Started:	Saturday, September 09, 1995	East Coordinate (feet):	385311.79
Time Started:	7:11 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
20.86	455	683	sand to silty sand	
21.07	453	662	sandy silt to silty clay	
21.16	453	455	clayey silt to silty clay	
21.41	457	515	clayey silt to silty clay	
21.66	474	662	clay	
22.18	472	630	silty sand to sandy silt	
22.43	466	696	clayey silt to silty clay	
22.69	468	668	sand	
22.94	455	675	sand	
23.19	457	570	sand	
23.70	453	555	clay	
23.95	443	615	clay	
24.20	447	507	clay	
24.40	464	462	clay	
24.65	457	473	clay	
24.91	462	539	sandy silt to silty clay	
25.17	464	677	clay	
25.42	466	705	clayey silt to silty clay	
25.68	476	718	clay	
25.93	464	500	sandy silt to silty clay	
26.08	451	530	sandy silt to silty clay	
26.33	468	587	silty clay to clay	
26.79	457	568	clay	
27.04	481	576	clay	
27.29	460	585	clayey silt to silty clay	
27.55	447	566	silty clay to clay	
27.93	468	577	clayey silt to silty clay	
28.20	443	525	sand to silty sand	
28.45	449	495	sandy silt to silty clay	
28.71	462	557	sandy silt to silty clay	
28.96	445	557	sandy silt to silty clay	
29.48	457	519	clay	
29.67	453	538	clay	
29.92	483	510	silty clay to clay	
30.12	485	1064	silty sand to sandy silt	
30.36	502	1335	silty sand to sandy silt	
30.49	479	924	clayey silt to silty clay	
30.74	466	626	clay	

Summary data based on field data that was collected using SCAPS

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id TK3804.CSV

North Coordinate (feet): 175869.93

Date Started: Saturday, September 09, 1995

East Coordinate (feet): 385311.79

Time Started: 7:11 PM

Elevation (feet): 0

Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
30.96	445	584	clay	
31.21	457	615	clayey silt to silty clay	
31.46	472	631	sandy silt to silty clay	
31.71	466	713	clay	
31.96	472	813	sand	
32.22	487	871	sand	
32.47	470	683	sand to silty sand	
32.73	462	612	clay	
32.98	487	604	clay	
33.45	464	628	clayey silt to silty clay	
33.70	470	581	clay	
33.95	489	582	clay	
34.21	479	602	silty clay to clay	
34.31	460	550	clayey silt to silty clay	
34.56	476	558	clay	
34.81	483	598	clayey silt to silty clay	
35.07	487	681	clay	
35.32	495	628	silty clay to clay	
35.57	491	623	clay	
35.83	485	658	clay	
36.10	485	753	sandy silt to silty clay	
36.35	485	894	clayey silt to silty clay	
36.47	504	917	clayey silt to silty clay	
36.72	472	711	sandy silt to silty clay	
37.22	483	627	clayey silt to silty clay	
37.48	470	611	clay	
37.69	445	587	clay	
37.95	455	606	silty sand to sandy silt	
38.20	464	677	clay	
38.46	472	625	clayey silt to silty clay	
38.59	455	619	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4201.CSV
 Date Started: Friday, September 08, 1995
 Time Started: 10:16 AM
 North Coordinate (feet): 175563.9
 East Coordinate (feet): 385434.38
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	449	2165	organic material	
0.41	451	2376	organic material	
0.66	443	2133	organic material	
0.84	447	2082	organic material	
1.09	445	2244	organic material	
1.34	445	2288	organic material	
1.59	443	2196	organic material	
1.84	453	2243	organic material	
2.09	468	2282	organic material	
2.35	451	2278	organic material	
2.60	460	2349	organic material	
2.85	449	2219	organic material	
3.36	455	1588	organic material	
3.61	436	1526	organic material	
3.85	464	2165	organic material	
4.10	462	2190	organic material	
4.33	457	2173	organic material	
4.58	468	2318	organic material	
4.83	464	1768	organic material	
5.08	445	1325	organic material	
5.32	462	1610	organic material	
5.57	464	1413	organic material	
5.82	462	1486	organic material	
6.07	474	1436	organic material	
6.32	453	1462	organic material	
6.82	460	1571	organic material	
7.07	472	1438	organic material	
7.33	470	1480	organic material	
7.57	455	1478	organic material	
7.82	466	1375	organic material	
8.07	462	1461	organic material	
8.32	462	1415	organic material	
8.57	457	1414	organic material	
8.82	462	1383	organic material	
9.32	455	1366	organic material	
9.56	455	1387	organic material	
10.06	464	1295	organic material	
10.31	470	1340	organic material	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4201.CSV	North Coordinate (feet):	175563.9
Date Started:	Friday, September 08, 1995	East Coordinate (feet):	385434.38
Time Started:	10:16 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.56	460	1367	organic material	
10.81	464	1307	organic material	
11.07	472	1323	organic material	
11.32	464	1405	organic material	
11.57	449	1359	organic material	
11.82	462	1436	organic material	
12.07	466	1607	organic material	
12.32	449	1394	organic material	
12.57	470	2164	organic material	
12.81	487	4390	organic material	
13.06	487	10062	organic material	
13.31	504	11828	organic material	
13.56	483	13608	organic material	
13.82	493	8424	organic material	
14.07	470	2752	organic material	
14.31	447	1809	organic material	
14.55	453	1204	organic material	
14.80	455	1035	organic material	
15.07	485	8430	organic material	
15.32	485	4570	organic material	
15.58	476	5527	organic material	
16.10	470	6582	organic material	
16.33	504	62859	organic material	
16.50	508	44702	organic material	
16.63	470	9813	organic material	
16.88	466	4911	sandy silt to silty clay	
17.13	466	1228	very stiff fine grained	
17.39	455	1099	very stiff fine grained	
17.65	470	1017	clay	
17.90	460	980	clay	
18.08	466	863	clay	
18.18	445	1009	clay	
18.39	462	902	clay	
18.63	462	1107	sand	
18.90	462	1036	very stiff fine grained	
19.15	464	1191	clay	
19.40	460	932	clay	
19.55	466	931	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4201.CSV	North Coordinate (feet):	175563.9
Date Started:	Friday, September 08, 1995	East C ordinate (feet):	385434.38
Time Started:	10:16 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.80	449	890	sandy silt to silty clay	
20.29	443	1170	silty sand to sandy silt	
20.55	470	1202	silty sand to sandy silt	
20.72	466	1073	very stiff fine grained	
20.97	447	927	very stiff fine grained	
21.09	451	936	clay	
21.34	445	780	sand to silty sand	
21.60	462	850	silty clay to clay	
21.85	453	1053	silty sand to sandy silt	
22.11	470	961	silty clay to clay	
22.37	457	822	clay	
22.62	462	886	clay	
22.87	453	796	clay	
23.13	457	788	clay	
23.39	447	1098	silty sand to sandy silt	
23.64	472	2192	sandy silt to silty clay	
23.89	481	5491	clay	
24.00	502	8632	clay	
24.17	489	9873	sand to silty sand	
24.42	481	11427	silty sand to sandy silt	
24.67	483	20415	silty sand to sandy silt	
25.17	472	15837	sandy silt to silty clay	
25.42	472	7996	silty sand to sandy silt	
25.68	466	1991	clayey silt to silty clay	
25.95	457	1102	clayey silt to silty clay	
26.45	436	1131	clay	
26.70	479	1016	silty clay to clay	
26.96	462	1007	silty clay to clay	
27.22	447	1204	sand to silty sand	
27.38	462	1363	silty sand to sandy silt	
27.63	453	838	clay	
27.89	462	1032	clay	
28.14	470	1247	silty clay to clay	
28.39	451	1160	sandy silt to silty clay	
28.65	460	1208	silty clay to clay	
28.90	457	1182	clay	
29.15	449	1115	clay	
29.26	462	1121	silty clay to clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id TK4201.CSV North Coordinate (feet): 175563.9
 Date Started: Friday, September 08, 1995 East Coordinate (feet): 385434.38
 Time Started: 10:16 AM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
29.76	483	33491	sandy silt to silty clay	
30.02	481	27176	clay	
30.28	504	30141	clay	
30.53	504	24085	clay	
30.78	491	11092	organic material	
31.28	500	22269	silty clay to clay	
31.53	504	125858	silty clay to clay	
31.62	502	118278	clayey silt to silty clay	
31.88	504	95113	silty sand to sandy silt	
32.14	504	82138	silty sand to sandy silt	
32.40	502	44549	silty sand to sandy silt	
32.66	502	14335	clayey silt to silty clay	
33.17	504	29494	organic material	
33.42	510	8065	organic material	
33.68	453	1599	clay	
33.87	466	1501	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4202.CSV	North Coordinate (feet):	175529.71
Date Started:	Friday, September 08, 1995	East Coordinate (feet):	385469.13
Time Started:	1:41 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	468	5632	organic material	
0.32	426	1384	organic material	
0.82	455	1735	organic material	
1.07	432	1743	organic material	
1.32	428	1639	organic material	
1.55	426	1543	organic material	
1.79	460	1146	organic material	
2.04	449	1396	organic material	
2.30	443	1365	organic material	
2.55	455	1197	organic material	
2.80	449	1123	organic material	
3.04	464	1280	organic material	
3.30	466	1146	organic material	
3.54	468	1102	organic material	
4.04	453	1126	organic material	
4.28	445	1057	organic material	
4.53	449	1139	organic material	
4.67	460	1160	organic material	
4.86	464	1167	organic material	
5.11	453	1105	organic material	
5.36	449	1012	organic material	
5.62	449	1060	organic material	
5.87	449	1101	organic material	
6.12	470	1303	organic material	
6.36	466	1384	organic material	
6.61	476	1240	organic material	
6.86	466	1518	organic material	
7.35	466	1442	organic material	
7.60	449	1456	organic material	
7.85	451	1222	organic material	
8.09	466	1098	organic material	
8.34	453	1160	organic material	
8.59	464	1128	organic material	
8.84	457	1211	organic material	
9.09	468	1246	organic material	
9.59	455	1310	organic material	
9.85	453	1201	organic material	
10.09	449	1188	organic material	

Summary data based on field data that was collected using SCAPS

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id TK4202.CSV North Coordinate (feet): 175529.71
 Date Started: Friday, September 08, 1995 East Coordinate (feet): 385469.13
 Time Started: 1:41 PM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.60	449	1172	organic material	
10.85	468	1095	organic material	
11.10	445	1040	organic material	
11.35	455	1052	organic material	
11.59	462	1034	organic material	
11.85	449	1041	organic material	
12.11	451	1028	organic material	
12.36	449	1031	organic material	
12.61	457	1039	organic material	
12.86	466	1076	organic material	
13.12	445	1082	organic material	
13.36	462	1088	organic material	
13.86	462	1078	organic material	
14.11	460	1050	organic material	
14.36	438	1106	organic material	
14.61	455	1116	organic material	
14.86	472	1080	organic material	
15.10	466	1092	organic material	
15.36	447	1080	organic material	
15.61	453	1041	organic material	
15.86	464	1032	organic material	
16.11	447	1054	organic material	
16.37	468	997	organic material	
16.62	455	1061	organic material	
16.81	447	1034	organic material	
17.06	455	1038	organic material	
17.31	474	1184	organic material	
17.56	464	1158	organic material	
17.81	453	1097	organic material	
18.06	445	1047	organic material	
18.26	462	990	organic material	
18.48	451	830	organic material	
18.65	453	882	organic material	
18.83	462	1030	organic material	
19.16	466	1078	organic material	
19.27	460	1032	organic material	
19.36	451	647	organic material	
19.52	466	806	organic material	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4202.CSV	North Coordinate (feet):	175529.71
Date Started:	Friday, September 08, 1995	East Coordinate (feet):	385469.13
Time Started:	1:41 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
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SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4203.CSV
 Date Started: Thursday, September 07, 1995
 Time Started: 9:01 AM
 North Coordinate (feet): 175535.78
 East Coordinate (feet): 385531.2
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	462	3145	sandy silt to silty clay	
0.41	443	1559	sandy silt to silty clay	
0.65	445	1493	sandy silt to silty clay	
0.90	453	1773	sandy silt to silty clay	
1.04	445	1513	sandy silt to silty clay	
1.29	445	1679	sandy silt to silty clay	
1.54	451	1577	sandy silt to silty clay	
2.04	441	1538	sandy silt to silty clay	
2.29	449	1591	sandy silt to silty clay	
2.54	438	1516	sandy silt to silty clay	
2.79	445	1500	sandy silt to silty clay	
3.04	441	1619	sandy silt to silty clay	
3.54	449	1758	sandy silt to silty clay	
3.79	455	1706	sandy silt to silty clay	
4.04	462	1690	sandy silt to silty clay	
4.29	460	1645	sandy silt to silty clay	
4.54	443	1598	sandy silt to silty clay	
4.78	462	1496	sandy silt to silty clay	
5.04	462	1424	sandy silt to silty clay	
5.41	445	1507	sandy silt to silty clay	
5.65	447	1414	sandy silt to silty clay	
5.90	436	1315	sandy silt to silty clay	
6.15	449	1283	sandy silt to silty clay	
6.40	443	1222	sandy silt to silty clay	
6.65	443	1281	sandy silt to silty clay	
6.90	445	1271	sandy silt to silty clay	
7.15	447	1338	sandy silt to silty clay	
7.40	445	1258	sandy silt to silty clay	
7.58	447	1304	sandy silt to silty clay	
7.83	445	1251	sandy silt to silty clay	
8.08	445	1645	sandy silt to silty clay	
8.33	445	1363	sandy silt to silty clay	
8.58	438	1319	sandy silt to silty clay	
8.83	464	1347	sandy silt to silty clay	
9.08	443	1339	sandy silt to silty clay	
9.33	466	1427	sandy silt to silty clay	
9.58	447	1381	sandy silt to silty clay	
10.08	453	1295	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4203.CSV
 Date Started: Thursday, September 07, 1995
 Time Started: 9:01 AM
 North Coordinate (feet): 175535.78
 East Coordinate (feet): 385531.2
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.33	451	1214	sandy silt to silty clay	
10.58	468	1218	sandy silt to silty clay	
10.84	451	1489	sandy silt to silty clay	
11.08	449	1308	sandy silt to silty clay	
11.34	449	1497	sandy silt to silty clay	
11.59	443	1487	sandy silt to silty clay	
11.84	449	1604	sandy silt to silty clay	
12.09	447	1654	sandy silt to silty clay	
12.34	443	1835	sandy silt to silty clay	
12.59	462	1618	sandy silt to silty clay	
12.84	470	1527	sandy silt to silty clay	
13.20	464	1345	sandy silt to silty clay	
13.38	449	1106	sandy silt to silty clay	
13.63	460	1724	sandy silt to silty clay	
13.89	457	1175	sandy silt to silty clay	
14.08	451	1321	sandy silt to silty clay	
14.33	462	1438	sandy silt to silty clay	
14.46	447	2315	silty sand to sandy silt	
14.71	462	1998	silty sand to sandy silt	
14.97	468	2003	silty sand to sandy silt	
15.22	457	1499	sand to silty sand	
15.47	451	1241	sand	
15.72	443	1108	sand	
15.92	462	1028	silty sand to sandy silt	
16.18	460	1049	sand to silty sand	
16.63	436	1361	sandy silt to silty clay	
16.89	453	1106	clay	
17.07	464	1118	clayey silt to silty clay	
17.21	464	1188	sandy silt to silty clay	
17.40	451	1403	sandy silt to silty clay	
17.61	436	1087	sandy silt to silty clay	
17.86	436	1113	clay	
18.07	445	1133	silty sand to sandy silt	
18.32	449	1048	sandy silt to silty clay	
18.51	436	1358	sandy silt to silty clay	
18.76	447	1184	sand to silty sand	
19.01	449	1178	silty sand to sandy silt	
19.21	462	1117	sand to clayey sand	

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id TK4203.CSV North Coordinate (feet): 175535.78
 Date Started: Thursday, September 07, 1995 East Coordinate (feet): 385531.2
 Time Started: 9:01 AM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.46	462	1092	sandy silt to silty clay	
19.97	453	1202	silty sand to sandy silt	
20.17	457	1231	sand to silty sand	
20.68	436	1246	silty sand to sandy silt	
20.90	451	1192	sand to silty sand	
21.00	462	1160	sand to silty sand	
21.25	451	1078	silty sand to sandy silt	
21.42	445	1084	silty sand to sandy silt	
21.68	438	1007	sandy silt to silty clay	
21.79	438	1159	silty sand to sandy silt	
22.04	441	1099	sand to silty sand	
22.55	468	1231	sand to silty sand	
22.79	453	1089	silty sand to sandy silt	
23.05	438	905	sand	
23.56	460	1105	sandy silt to silty clay	
23.81	445	1099	sandy silt to silty clay	
24.03	447	1164	silty sand to sandy silt	
24.22	453	1092	silty sand to sandy silt	
24.47	445	1141	silty sand to sandy silt	
24.72	438	1115	sand to silty sand	
24.97	445	1126	silty sand to sandy silt	
25.47	466	1170	silty sand to sandy silt	
25.73	453	1078	silty sand to sandy silt	
25.98	436	1075	sandy silt to silty clay	
26.48	464	1029	sandy silt to silty clay	
26.74	441	1127	sandy silt to silty clay	
26.98	441	1052	sandy silt to silty clay	
27.23	466	1139	sand to silty sand	
27.42	447	1081	silty sand to sandy silt	
27.67	432	1104	silty sand to sandy silt	
27.92	445	1284	silty sand to sandy silt	
28.17	447	1164	silty sand to sandy silt	
28.42	445	1200	silty sand to sandy silt	
28.67	436	1105	silty sand to sandy silt	
28.91	460	1095	silty sand to sandy silt	
29.17	441	1097	silty sand to sandy silt	
29.67	438	1086	sand	
29.93	460	1055	sand to silty sand	

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id	TK4203.CSV	North Coordinate (feet):	175535.78
Date Started:	Thursday, September 07, 1995	East Coordinate (feet):	385531.2
Time Started:	9:01 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
30.18	453	1252	silty sand to sandy silt	
30.43	436	1067	silty sand to sandy silt	
30.61	445	1058	sand to silty sand	
30.85	455	1013	silty sand to sandy silt	
31.10	451	1048	sandy silt to silty clay	
31.35	468	1072	silty sand to sandy silt	
31.60	449	1075	sand to silty sand	
31.84	447	1171	sandy silt to silty clay	
32.10	434	1101	silty sand to sandy silt	
32.34	438	1100	clayey silt to silty clay	
32.59	441	1167	sandy silt to silty clay	
33.10	455	1088	silty sand to sandy silt	
33.35	441	1112	silty sand to sandy silt	
33.59	445	1112	sand to silty sand	
33.78	460	1015	silty sand to sandy silt	
33.88	451	1208	sand to silty sand	
34.22	445	1476	clayey silt to silty clay	
34.34	447	1469	sandy silt to silty clay	
34.46	462	1130	clayey silt to silty clay	

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id TK4204.CSV North Coordinate (feet): 175619.87
 Date Started: Thursday, September 07, 1995 East Coordinate (feet): 385426.1
 Time Started: 10:46 AM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	462	1571	organic material	
0.42	445	1405	organic material	
0.67	445	1122	organic material	
0.92	457	966	organic material	
1.02	443	949	organic material	
1.27	453	982	organic material	
1.77	466	1014	organic material	
2.02	443	985	organic material	
2.28	451	879	organic material	
2.52	438	861	organic material	
2.77	443	878	organic material	
3.03	445	933	organic material	
3.53	447	870	organic material	
3.78	438	813	organic material	
4.03	468	945	organic material	
4.28	468	1099	organic material	
4.53	447	1019	organic material	
4.61	445	676	organic material	
4.86	432	941	organic material	
5.11	462	895	organic material	
5.62	447	828	organic material	
5.87	460	841	sensitive fine grained	
6.12	464	884	organic material	
6.37	457	1256	organic material	
6.62	445	670	organic material	
7.13	460	793	organic material	
7.38	445	646	organic material	
7.63	451	681	organic material	
7.88	466	705	organic material	
8.13	460	723	organic material	
8.37	447	729	organic material	
8.62	438	691	organic material	
8.87	468	683	organic material	
9.12	436	699	organic material	
9.37	445	677	organic material	
9.62	438	689	organic material	
9.87	443	655	organic material	
10.32	447	666	sensitive fine grained	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id TK4204.CSV

North Coordinate (feet): 175619.87

East Coordinate (feet): 385426.1

Date Started: Thursday, September 07, 1995

Elevation (feet): 0

Time Started: 10:46 AM

Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.56	432	630	organic material	
10.81	447	659	organic material	
11.06	453	638	sensitive fine grained	
11.16	455	654	organic material	
11.41	441	640	organic material	
11.66	462	634	organic material	
11.91	464	638	organic material	
12.16	466	638	organic material	
12.42	466	808	organic material	
12.94	449	938	organic material	
13.19	460	831	sensitive fine grained	
13.45	455	738	sandy silt to silty clay	
13.70	447	766	sand to silty sand	
14.03	462	665	sand	
14.15	449	727	sand to silty sand	
14.33	445	846	sand	
14.43	453	998	sand	
14.64	445	672	silty sand to sandy silt	
14.89	443	615	sandy silt to silty clay	
15.12	449	664	silty sand to sandy silt	
15.33	443	599	silty sand to sandy silt	
15.57	460	629	silty sand to sandy silt	
15.82	447	601	silty sand to sandy silt	
16.07	436	562	sand to silty sand	
16.32	468	538	sand	
16.58	449	746	very stiff fine grained	
16.83	464	711	silty sand to sandy silt	
16.99	445	686	very stiff fine grained	
17.20	447	589	silty sand to sandy silt	
17.60	432	630	clay	
17.71	443	721	clayey silt to silty clay	
17.96	445	612	clay	
18.13	453	613	sandy silt to silty clay	
18.38	441	670	very stiff fine grained	
18.57	447	675	clayey silt to silty clay	
18.79	432	566	silty sand to sandy silt	
18.97	436	603	sand	
19.22	447	613	gravely sand to sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4204.CSV
 Date Started: Thursday, September 07, 1995
 Time Started: 10:46 AM
 North Coordinate (feet): 175619.87
 East Coordinate (feet): 385426.1
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.70	449	733	sand to silty sand	
20.20	436	644	sandy silt to silty clay	
20.69	451	652	sand to silty sand	
20.95	449	706	sand to silty sand	
21.16	443	666	sandy silt to silty clay	
21.41	432	669	clay	
21.66	445	660	silty clay to clay	
21.91	447	617	silty sand to sandy silt	
22.16	457	672	sandy silt to silty clay	
22.41	466	550	clay	
22.67	445	668	silty sand to sandy silt	
22.91	447	625	sandy silt to silty clay	
23.08	453	619	clayey silt to silty clay	
23.52	464	680	clayey silt to silty clay	
23.77	451	685	clay	
24.02	443	670	clay	
24.27	447	660	clayey silt to silty clay	
24.52	457	590	clay	
24.67	455	632	clay	
24.91	460	671	sandy silt to silty clay	
25.10	436	606	sand to silty sand	
25.26	464	719	sand	
25.52	451	603	sand to silty sand	
25.77	468	585	silty clay to clay	
26.02	449	566	clay	
26.23	449	548	clayey silt to silty clay	
26.41	447	532	clayey silt to silty clay	
26.66	443	599	silty sand to sandy silt	
26.90	443	560	clay	
27.15	445	592	sand to silty sand	
27.33	441	644	sand to silty sand	
27.57	449	496	clay	
27.82	443	599	clay	
28.08	468	532	sandy silt to silty clay	
28.33	462	518	clayey silt to silty clay	
28.59	447	623	sandy silt to silty clay	
28.70	443	698	sandy silt to silty clay	
28.94	453	585	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4204.CSV	North Coordinate (feet):	175619.87
Date Started:	Thursday, September 07, 1995	East Coordinate (feet):	385426.1
Time Started:	10:46 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
29.19	441	620	clay	
29.43	445	476	clayey silt to silty clay	
29.68	449	542	sandy silt to silty clay	
29.93	455	605	silty sand to sandy silt	
30.18	455	719	sand to silty sand	
30.31	466	612	sand to silty sand	
30.46	451	624	clayey silt to silty clay	
30.63	447	633	silty sand to sandy silt	
30.82	449	605	sand to silty sand	
31.00	457	561	silty sand to sandy silt	
31.19	468	509	sand to silty sand	
31.45	449	522	silty sand to sandy silt	
31.59	453	492	silty sand to sandy silt	

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id TK4205.CSV North Coordinate (feet): 175581.82
 Date Started: Thursday, September 07, 1995 East Coordinate (feet): 385401.55
 Time Started: 1:15 PM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	504	7857	organic material	
0.42	451	1495	organic material	
0.67	438	1287	organic material	
0.93	436	1025	organic material	
1.18	438	1011	organic material	
1.43	436	1012	organic material	
1.68	428	931	organic material	
2.18	447	908	organic material	
2.43	445	929	organic material	
2.68	449	879	organic material	
3.19	441	840	organic material	
3.45	447	790	organic material	
3.70	438	765	organic material	
3.96	457	871	organic material	
4.21	470	864	organic material	
4.46	453	1072	organic material	
4.72	457	889	organic material	
4.83	462	962	organic material	
5.08	451	1115	organic material	
5.33	462	988	organic material	
5.60	462	642	organic material	
5.85	474	816	organic material	
6.11	453	890	organic material	
6.36	453	880	organic material	
6.62	447	809	organic material	
6.88	445	780	organic material	
7.13	470	864	organic material	
7.39	449	860	organic material	
7.90	438	838	organic material	
8.16	449	861	organic material	
8.40	455	871	organic material	
8.66	470	869	organic material	
8.92	460	793	organic material	
9.18	466	845	organic material	
9.43	455	730	organic material	
9.69	468	729	organic material	
9.94	462	728	organic material	
10.20	462	724	organic material	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4205.CSV
 Date Started: Thursday, September 07, 1995
 Time Started: 1:15 PM
 North Coordinate (feet): 175581.82
 East Coordinate (feet): 385401.55
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.71	457	728	organic material	
10.97	470	852	organic material	
11.23	472	778	organic material	
11.44	472	828	organic material	
11.69	445	784	organic material	
11.95	460	804	organic material	
12.21	464	826	organic material	
12.46	466	817	organic material	
12.71	474	894	organic material	
12.97	457	850	organic material	
13.23	462	757	organic material	
13.48	462	730	organic material	
13.73	460	765	organic material	
13.98	468	781	organic material	
14.24	451	760	organic material	
14.49	445	785	organic material	
14.70	462	788	organic material	
14.95	451	739	organic material	
15.21	464	749	organic material	
15.46	470	817	organic material	
15.72	468	1013	organic material	
15.97	449	958	organic material	
16.23	462	993	organic material	
16.48	476	997	organic material	
16.73	449	895	silty sand to sandy silt	
17.45	457	740	silty sand to sandy silt	
17.70	443	704	silty sand to sandy silt	
17.95	443	660	sandy silt to silty clay	
18.21	449	615	silty sand to sandy silt	
18.46	449	660	silty sand to sandy silt	
18.69	447	661	silty sand to sandy silt	
18.90	468	690	sand	
19.03	464	632	sand to silty sand	
19.17	464	662	sand	
19.26	453	621	sand to silty sand	
19.34	445	675	sand to silty sand	
19.59	466	593	sand to silty sand	
19.69	443	531	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4205.CSV	North Coordinate (feet):	175581.82
Date Started:	Thursday, September 07, 1995	East Coordinate (feet):	385401.55
Time Started:	1:15 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.79	441	587	sand	
19.93	457	612	sand	
20.05	479	498	sand to silty sand	
20.16	455	502	sand to silty sand	
20.37	472	584	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id TK4206.CSV North Co rdinate (feet): 175663.99
 Date Started: Thursday, September 07, 1995 East Coordinate (feet): 385459.2
 Time Started: 2:02 PM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	455	1343	organic material	
0.42	464	1358	organic material	
0.67	457	961	organic material	
0.92	455	799	organic material	
1.17	449	881	organic material	
1.42	447	811	organic material	
1.67	449	844	organic material	
1.92	460	770	organic material	
2.17	455	740	organic material	
2.43	445	752	organic material	
2.68	466	740	organic material	
2.93	457	761	organic material	
3.43	464	791	organic material	
3.68	464	799	organic material	
3.93	455	817	organic material	
4.18	453	963	organic material	
4.43	445	906	organic material	
4.64	445	854	organic material	
4.90	455	1117	organic material	
5.15	462	803	organic material	
5.41	455	652	organic material	
5.91	462	905	organic material	
6.16	445	771	organic material	
6.41	460	743	organic material	
6.66	466	747	organic material	
7.16	462	904	organic material	
7.41	466	891	organic material	
7.66	464	987	organic material	
7.89	474	728	organic material	
8.14	451	862	organic material	
8.39	464	901	organic material	
8.65	457	877	organic material	
8.90	455	642	organic material	
9.14	449	749	organic material	
9.40	457	774	organic material	
9.65	449	827	organic material	
9.90	468	780	organic material	
10.40	470	732	organic material	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4206.CSV	North C ordinate (feet):	175663.99
Date Started:	Thursday, September 07, 1995	East Coordinate (feet):	385459.2
Time Started:	2:02 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.65	457	720	organic material	
10.90	453	708	organic material	
11.15	470	678	organic material	
11.40	470	626	organic material	
11.65	436	726	organic material	
11.91	455	827	organic material	
12.16	455	659	organic material	
12.41	449	719	organic material	
12.66	470	894	organic material	
12.91	474	789	organic material	
13.17	460	803	organic material	
13.67	464	692	organic material	
13.92	464	732	organic material	
14.17	474	709	organic material	
14.42	472	670	organic material	
14.59	451	639	organic material	
14.84	460	669	organic material	
15.09	464	793	organic material	
15.34	462	859	organic material	
15.60	438	836	organic material	
15.85	462	815	organic material	
16.11	462	732	organic material	
16.37	457	834	organic material	
16.87	464	718	clay	
17.05	453	784	clayey silt to silty clay	
17.25	462	926	sand to silty sand	
17.50	468	782	silty sand to sandy silt	
17.73	462	728	silty sand to sandy silt	
17.99	455	751	silty sand to sandy silt	
18.25	466	675	silty sand to sandy silt	
18.50	466	642	organic material	
18.76	438	685	clay	
18.85	462	653	organic material	
19.07	457	614	silty sand to sandy silt	
19.27	462	754	sand to silty sand	
19.53	453	789	sand to silty sand	
19.78	466	751	silty sand to sandy silt	
19.87	447	820	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4206.CSV
 Date Started: Thursday, September 07, 1995
 Time Started: 2:02 PM
 North Coordinate (feet): 175663.99
 East Coordinate (feet): 385459.2
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
20.13	457	691	sandy silt to silty clay	
20.38	455	678	clay	
20.64	436	839	clayey silt to silty clay	
20.84	455	791	silty sand to sandy silt	
20.97	445	835	sand to silty sand	
21.23	449	859	sandy silt to silty clay	
21.48	453	861	sandy silt to silty clay	
21.73	455	773	clayey silt to silty clay	
21.99	449	743	clayey silt to silty clay	
22.24	457	737	sandy silt to silty clay	
22.35	438	797	sandy silt to silty clay	
22.61	449	749	silty sand to sandy silt	
22.86	479	634	sand to silty sand	
23.06	445	871	silty sand to sandy silt	
23.31	457	813	clayey silt to silty clay	
23.56	445	768	clayey silt to silty clay	
23.81	470	691	sandy silt to silty clay	
24.07	445	716	sandy silt to silty clay	
24.30	445	649	sandy silt to silty clay	
24.56	468	569	sand to silty sand	
24.81	449	667	silty sand to sandy silt	
24.91	449	668	sandy silt to silty clay	
25.13	453	618	sandy silt to silty clay	
25.37	460	628	silty sand to sandy silt	
25.62	464	619	clay	
25.79	438	576	clayey silt to silty clay	
26.05	464	558	sandy silt to silty clay	
26.30	447	698	silty sand to sandy silt	
27.02	455	664	sandy silt to silty clay	
27.27	462	721	clayey silt to silty clay	
27.52	464	835	silty clay to clay	
27.77	447	630	sandy silt to silty clay	
28.02	472	657	sandy silt to silty clay	
28.27	466	546	sand to silty sand	
28.53	443	569	sandy silt to silty clay	
28.78	466	635	sand to silty sand	
28.87	449	698	sandy silt to silty clay	
29.12	447	655	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4206.CSV
 Date Started: Thursday, September 07, 1995
 Time Started: 2:02 PM
 North Coordinate (feet): 175663.99
 East Coordinate (feet): 385459.2
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
29.21	438	625	sandy silt to silty clay	
29.46	441	666	sandy silt to silty clay	
29.70	436	661	sand	
30.13	436	688	silty sand to sandy silt	
30.38	441	764	silty sand to sandy silt	
30.64	445	726	very stiff fine grained	
30.88	457	612	clay	
30.99	451	605	silty sand to sandy silt	
31.15	479	704	silty sand to sandy silt	
31.29	449	537	sandy silt to silty clay	
31.44	464	571	sandy silt to silty clay	
31.60	462	776	clayey silt to silty clay	
31.78	460	883	clayey silt to silty clay	
32.07	468	492	silty sand to sandy silt	
32.21	447	564	sand to silty sand	
32.34	445	664	sandy silt to silty clay	
32.43	455	649	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4207.CSV
 Date Started: Thursday, September 07, 1995
 Time Started: 4:47 PM
 North Coordinate (feet): 175647.17
 East Coordinate (feet): 385549.13
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	447	688	organic material	
0.40	457	720	organic material	
0.65	449	730	organic material	
0.85	460	716	organic material	
1.10	451	600	organic material	
1.35	457	649	organic material	
1.61	462	659	organic material	
1.86	460	663	organic material	
2.11	470	679	organic material	
2.36	466	703	organic material	
2.61	457	721	organic material	
2.86	455	719	organic material	
3.36	457	733	organic material	
3.61	462	737	organic material	
3.86	451	794	organic material	
4.11	438	750	organic material	
4.23	462	734	organic material	
4.48	464	770	organic material	
4.73	457	677	organic material	
4.98	464	737	organic material	
5.23	436	640	organic material	
5.48	453	731	organic material	
5.73	472	611	organic material	
5.98	453	621	organic material	
6.23	453	624	organic material	
6.73	449	688	organic material	
6.98	464	698	organic material	
7.23	462	720	organic material	
7.48	453	742	organic material	
7.73	468	739	organic material	
7.99	447	796	organic material	
8.24	457	899	organic material	
8.49	476	813	organic material	
8.75	460	761	organic material	
9.00	445	880	organic material	
9.25	445	791	organic material	
9.50	466	798	organic material	
9.76	468	864	organic material	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id TK4207.CSV North Coordinate (feet): 175647.17
 Date Started: Thursday, September 07, 1995 East Coordinate (feet): 385549 13
 Time Started: 4:47 PM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.01	466	729	organic material	
10.25	462	689	organic material	
10.50	462	906	organic material	
10.75	462	858	organic material	
11.00	466	873	organic material	
11.24	464	853	organic material	
11.49	476	837	organic material	
11.75	483	779	organic material	
12.00	460	785	organic material	
12.25	472	627	organic material	
12.50	472	757	organic material	
12.75	466	846	organic material	
13.25	462	592	organic material	
13.50	445	676	organic material	
13.61	451	613	organic material	
13.83	455	741	organic material	
14.03	443	663	organic material	
14.29	462	691	organic material	
14.53	443	683	organic material	
14.79	462	684	organic material	
15.04	470	698	organic material	
15.29	447	673	organic material	
15.54	462	722	organic material	
15.73	445	657	clayey silt to silty clay	
15.98	455	731	silty sand to sandy silt	
16.49	466	709	sandy silt to silty clay	
16.75	455	738	silty sand to sandy silt	
17.01	464	844	silty sand to sandy silt	
17.26	436	710	sandy silt to silty clay	
17.51	445	671	clayey silt to silty clay	
17.71	460	591	silty sand to sandy silt	
17.88	457	657	sand	
17.99	466	991	sand	
18.24	468	688	sandy silt to silty clay	
18.49	464	745	silty sand to sandy silt	
18.73	453	561	clayey silt to silty clay	
18.99	453	590	clay	
19.19	449	546	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4207.CSV
 Date Started: Thursday, September 07, 1995
 Time Started: 4:47 PM
 North Coordinate (feet): 175647.17
 East Coordinate (feet): 385549.13
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.71	455	520	clayey silt to silty clay	
19.96	447	705	silty sand to sandy silt	
20.18	462	647	sand	
20.38	449	672	sand	
20.86	462	568	silty sand to sandy silt	
21.11	447	555	sandy silt to silty clay	
21.30	445	581	sand to silty sand	
21.55	455	573	clay	
21.80	462	568	clay	
22.05	462	555	sandy silt to silty clay	
22.18	466	613	silty sand to sandy silt	
22.68	464	479	clay	
22.93	453	487	clay	
23.18	441	470	clay	
23.42	447	567	sand to silty sand	
23.69	441	719	sandy silt to silty clay	
23.87	460	616	very stiff fine grained	
24.12	445	568	sandy silt to silty clay	
24.38	453	619	sand	
24.63	447	710	silty sand to sandy silt	
24.89	443	637	clayey silt to silty clay	
25.14	457	696	sandy silt to silty clay	
25.39	445	804	clayey silt to silty clay	
25.64	462	703	sandy silt to silty clay	
25.90	438	722	sandy silt to silty clay	
25.99	447	794	sandy silt to silty clay	
26.48	466	816	sandy silt to silty clay	
26.73	466	786	clay	
26.99	438	715	sandy silt to silty clay	
27.20	434	773	sandy silt to silty clay	
27.45	464	671	clay	
27.71	451	737	sandy silt to silty clay	
27.95	449	656	sandy silt to silty clay	
28.20	468	737	silty sand to sandy silt	
28.45	445	755	sand to silty sand	
28.58	460	755	silty sand to sandy silt	
28.83	457	673	silty clay to clay	
29.09	460	682	silty sand to sandy silt	

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id TK4207.CSV

North Co rdinate (feet): 175647.17

East Coordinate (feet): 385549.13

Date Started: Thursday, September 07, 1995

Elevation (feet): 0

Time Started: 4:47 PM

Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
29.54	432	659	clayey silt to silty clay	
29.78	438	705	silty sand to sandy silt	
30.03	436	659	sandy silt to silty clay	
30.28	449	700	sandy silt to silty clay	
30.48	449	688	sandy silt to silty clay	
30.73	449	714	sand to silty sand	
30.97	451	657	silty sand to sandy silt	
31.16	455	700	silty clay to clay	
31.41	447	690	sandy silt to silty clay	
31.92	462	731	sand to silty sand	
32.17	457	716	sand to silty sand	
32.42	445	792	sandy silt to silty clay	
32.93	447	788	silty sand to sandy silt	
33.20	464	815	sand to silty sand	
33.44	438	810	sand	
33.64	472	881	silty sand to sandy silt	
33.78	487	1727	silty clay to clay	
34.02	502	2764	clay	
34.27	498	4964	sandy silt to silty clay	
34.52	462	902	sand to silty sand	
34.78	462	1206	sand to silty sand	
35.02	470	882	silty sand to sandy silt	
35.26	466	768	sand to silty sand	
35.35	466	782	sand	
35.57	472	785	silty sand to sandy silt	
35.82	462	897	very stiff fine grained	
36.32	472	795	clay	
36.56	464	716	silty sand to sandy silt	
36.81	443	537	silty sand to sandy silt	
37.03	451	453	sand to silty sand	

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id TK4501.CSV

North C ordinate (feet): 175488.45

East Coordinate (feet): 385773.41

Date Started: Friday, September 08, 1995

Elevation (feet): 0

Time Started: 10:16 AM

Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	449	1719	organic material	
0.41	451	1886	organic material	
0.66	443	1694	organic material	
0.84	447	1653	organic material	
1.09	445	1782	organic material	
1.34	445	1817	organic material	
1.59	443	1743	organic material	
1.84	453	1781	organic material	
2.09	468	1812	organic material	
2.35	451	1808	organic material	
2.60	460	1865	organic material	
2.85	449	1762	organic material	
3.36	455	1261	organic material	
3.61	436	1211	organic material	
3.85	464	1719	organic material	
4.10	462	1738	organic material	
4.33	457	1725	organic material	
4.58	468	1840	organic material	
4.83	464	1404	organic material	
5.08	445	1052	organic material	
5.32	462	1278	organic material	
5.57	464	1121	organic material	
5.82	462	1180	organic material	
6.07	474	1140	organic material	
6.32	453	1160	organic material	
6.82	460	1247	organic material	
7.07	472	1141	organic material	
7.33	470	1175	organic material	
7.57	455	1173	organic material	
7.82	466	1092	organic material	
8.07	462	1160	organic material	
8.32	462	1123	organic material	
8.57	457	1122	organic material	
8.82	462	1098	organic material	
9.32	455	1084	organic material	
9.56	455	1101	organic material	
10.06	464	1028	organic material	
10.31	470	1063	organic material	

Summary data based on field data that was collected using SCAPS

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id TK4501.CSV North Coordinate (feet): 175488.45
 Date Started: Friday, September 08, 1995 East Coordinate (feet): 385773.41
 Time Started: 10:16 AM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.56	460	1085	organic material	
10.81	464	1038	organic material	
11.07	472	1050	organic material	
11.32	464	1116	organic material	
11.57	449	1079	organic material	
11.82	462	1140	organic material	
12.07	466	1276	organic material	
12.32	449	1107	organic material	
12.57	470	1718	organic material	
12.81	487	3485	organic material	
13.06	487	7988	organic material	
13.31	504	9390	organic material	
13.56	483	10803	organic material	
13.82	493	6687	organic material	
14.07	470	2184	organic material	
14.31	447	1436	organic material	
14.55	453	955	organic material	
14.80	455	822	organic material	
15.07	485	6692	organic material	
15.32	485	3628	organic material	
15.58	476	4388	organic material	
16.10	470	5226	organic material	
16.33	504	49903	organic material	
16.50	508	35489	organic material	
16.63	470	7790	organic material	
16.88	466	3899	sandy silt to silty clay	
17.13	466	974	very stiff fine grained	
17.39	455	872	very stiff fine grained	
17.65	470	808	clay	
17.90	460	778	clay	
18.08	466	685	clay	
18.18	445	801	clay	
18.39	462	716	clay	
18.63	462	879	sand	
18.90	462	822	very stiff fine grained	
19.15	464	945	clay	
19.40	460	739	clay	
19.55	466	739	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4501.CSV
 Date Started: Friday, September 08, 1995
 Time Started: 10:16 AM
 North Coordinate (feet): 175488.45
 East Coordinate (feet): 385773.41
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.80	449	706	sandy silt to silty clay	
20.29	443	929	silty sand to sandy silt	
20.55	470	955	silty sand to sandy silt	
20.72	466	852	very stiff fine grained	
20.97	447	736	very stiff fine grained	
21.09	451	743	clay	
21.34	445	619	sand to silty sand	
21.60	462	675	silty clay to clay	
21.85	453	836	silty sand to sandy silt	
22.11	470	763	silty clay to clay	
22.37	457	652	clay	
22.62	462	703	clay	
22.87	453	631	clay	
23.13	457	626	clay	
23.39	447	871	silty sand to sandy silt	
23.64	472	1740	sandy silt to silty clay	
23.89	481	4359	clay	
24.00	502	6853	clay	
24.17	489	7838	sand to silty sand	
24.42	481	9072	silty sand to sandy silt	
24.67	483	16207	silty sand to sandy silt	
25.17	472	12573	sandy silt to silty clay	
25.42	472	6348	silty sand to sandy silt	
25.68	466	1581	clayey silt to silty clay	
25.95	457	875	clayey silt to silty clay	
26.45	436	898	clay	
26.70	479	807	silty clay to clay	
26.96	462	799	silty clay to clay	
27.22	447	955	sand to silty sand	
27.38	462	1082	silty sand to sandy silt	
27.63	453	666	clay	
27.89	462	819	clay	
28.14	470	990	silty clay to clay	
28.39	451	920	sandy silt to silty clay	
28.65	460	959	silty clay to clay	
28.90	457	938	clay	
29.15	449	885	clay	
29.26	462	890	silty clay to clay	

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id	TK4501.CSV	North Coordinate (feet):	175488.45
Date Started:	Friday, September 08, 1995	East Coordinate (feet):	385773.41
Time Started:	10:16 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
29.76	483	2659	sandy silt to silty clay	
30.02	481	21575	clay	
30.28	504	23929	clay	
30.53	504	19121	clay	
30.78	491	8806	organic material	
31.28	500	17679	silty clay to clay	
31.53	504	99917	silty clay to clay	
31.62	502	93899	clayey silt to silty clay	
31.88	504	75509	silty sand to sandy silt	
32.14	504	65209	silty sand to sandy silt	
32.40	502	35367	silty sand to sandy silt	
32.66	502	11380	clayey silt to silty clay	
33.17	504	23414	organic material	
33.42	510	6402	organic material	
33.68	453	1269	clay	
33.87	466	1191	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id TK4502.CSV

North Coordinate (feet): 175502.77

East Coordinate (feet): 385734.45

Date Started: Friday, September 08, 1995

Elevation (feet): 0

Time Started: 1:41 PM

Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	468	5160	organic material	
0.32	426	1268	organic material	
0.82	455	1589	organic material	
1.07	432	1597	organic material	
1.32	428	1501	organic material	
1.55	426	1414	organic material	
1.79	460	1049	organic material	
2.04	449	1279	organic material	
2.30	443	1250	organic material	
2.55	455	1097	organic material	
2.80	449	1029	organic material	
3.04	464	1173	organic material	
3.30	466	1049	organic material	
3.54	468	1010	organic material	
4.04	453	1032	organic material	
4.28	445	968	organic material	
4.53	449	1044	organic material	
4.67	460	1063	organic material	
4.86	464	1069	organic material	
5.11	453	1012	organic material	
5.36	449	927	organic material	
5.62	449	971	organic material	
5.87	449	1009	organic material	
6.12	470	1194	organic material	
6.36	466	1268	organic material	
6.61	476	1136	organic material	
6.86	466	1391	organic material	
7.35	466	1321	organic material	
7.60	449	1334	organic material	
7.85	451	1120	organic material	
8.09	466	1006	organic material	
8.34	453	1063	organic material	
8.59	464	1034	organic material	
8.84	457	1109	organic material	
9.09	468	1142	organic material	
9.59	455	1200	organic material	
9.85	453	1100	organic material	
10.09	449	1088	organic material	

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id TK4502.CSV North Coordinate (feet): 175502.77
 Date Started: Friday, September 08, 1995 East Coordinate (feet): 385734 45
 Time Started: 1:41 PM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.60	449	1074	organic material	
10.85	468	1003	organic material	
11.10	445	952	organic material	
11.35	455	964	organic material	
11.59	462	947	organic material	
11.85	449	954	organic material	
12.11	451	942	organic material	
12.36	449	944	organic material	
12.61	457	952	organic material	
12.86	466	986	organic material	
13.12	445	991	organic material	
13.36	462	997	organic material	
13.86	462	987	organic material	
14.11	460	962	organic material	
14.36	438	1013	organic material	
14.61	455	1022	organic material	
14.86	472	990	organic material	
15.10	466	1001	organic material	
15.36	447	990	organic material	
15.61	453	954	organic material	
15.86	464	946	organic material	
16.11	447	966	organic material	
16.37	468	913	organic material	
16.62	455	972	organic material	
16.81	447	947	organic material	
17.06	455	951	organic material	
17.31	474	1084	organic material	
17.56	464	1061	organic material	
17.81	453	1005	organic material	
18.06	445	959	organic material	
18.26	462	907	organic material	
18.48	451	760	organic material	
18.65	453	808	organic material	
18.83	462	943	organic material	
19.16	466	987	organic material	
19.27	460	946	organic material	
19.36	451	592	organic material	
19.52	466	738	organic material	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4502.CSV	North Coordinate (feet):	175502.77
Date Started:	Friday, September 08, 1995	East Coordinate (feet):	385734.45
Time Started:	1:41 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
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SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id TK4503.CSV North Coordinate (feet): 175551.1
 Date Started: Friday, September 08, 1995 East Coordinate (feet): 385883.11
 Time Started: 2:44 PM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	424	1043	organic material	
0.42	424	1138	organic material	
0.67	432	2078	organic material	
0.92	422	1664	organic material	
1.17	468	1496	organic material	
1.67	443	1211	organic material	
1.92	436	1187	organic material	
2.17	432	1126	organic material	
2.42	441	2003	silty clay to clay	
2.67	443	5019	organic material	
2.92	441	4539	organic material	
3.17	430	4501	organic material	
3.68	430	4688	organic material	
3.93	445	4855	organic material	
4.18	432	4873	organic material	
4.43	434	4931	organic material	
4.67	430	5003	organic material	
4.92	432	4980	organic material	
5.17	426	4808	organic material	
5.42	430	4829	organic material	
5.67	426	4884	organic material	
5.93	430	5015	organic material	
6.17	441	4838	organic material	
6.42	430	4997	organic material	
6.66	428	4819	organic material	
7.16	430	4780	organic material	
7.41	428	4835	organic material	
7.66	424	4749	organic material	
7.85	430	4843	organic material	
8.10	430	4730	organic material	
8.35	428	4855	organic material	
8.60	432	4823	organic material	
8.85	426	4807	organic material	
9.10	430	4883	organic material	
9.35	430	4847	organic material	
9.60	430	4830	organic material	
9.85	447	4706	organic material	
10.36	430	4765	organic material	

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id TK4503.CSV North Coordinate (feet): 175551.1
 Date Started: Friday, September 08, 1995 East Coordinate (feet): 385883.11
 Time Started: 2:44 PM Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.86	428	4464	organic material	
11.11	428	6648	organic material	
11.36	426	4682	organic material	
11.61	428	4793	organic material	
11.86	438	4789	organic material	
12.11	438	4998	organic material	
12.36	436	5090	organic material	
12.61	430	4702	organic material	
12.86	432	4851	organic material	
13.11	430	5648	organic material	
13.61	432	4421	organic material	
13.86	428	1980	organic material	
14.11	436	1190	organic material	
14.36	470	833	organic material	
14.82	466	688	organic material	
15.07	476	864	organic material	
15.33	481	972	organic material	
15.51	487	979	organic material	
15.68	468	932	organic material	
15.89	481	730	organic material	
16.05	470	681	organic material	
16.27	468	1017	organic material	
16.51	476	842	organic material	
16.77	489	804	organic material	
17.02	453	714	organic material	
17.28	470	885	clay	
17.54	476	694	clay	
17.70	476	672	sand to silty sand	
17.95	470	598	gravely sand to sand	
18.09	479	796	sand	
18.23	447	528	sand to silty sand	

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id	TK4504.CSV	North C ordinate (feet):	175537.23
Date Started:	Friday, September 08, 1995	East Coordinate (feet):	385897.89
Time Started:	3:46 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.12	700	75	organic material	
0.36	694	63	organic material	
0.61	700	75	organic material	
0.86	698	62	organic material	
1.11	700	82	organic material	
1.36	698	62	organic material	
1.61	694	69	organic material	
1.76	692	81	organic material	
2.01	698	72	organic material	
2.26	700	71	organic material	
2.51	700	69	organic material	
2.76	700	64	organic material	
3.01	698	75	silty clay to clay	
3.25	700	85	clayey silt to silty clay	
3.48	700	79	silty clay to clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4505.CSV
 Date Started: Friday, September 08, 1995
 Time Started: 4:48 PM
 North Coordinate (feet): 175548.42
 East Coordinate (feet): 385893.86
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	441	2478	organic material	
0.42	432	1654	organic material	
0.56	441	1497	organic material	
0.81	438	1513	organic material	
0.94	443	1304	organic material	
1.19	430	1326	organic material	
1.70	438	1258	clay	
2.40	438	1865	organic material	
2.65	434	1767	clay	
3.15	441	1579	clay	
3.41	441	1741	clay	
3.67	438	1244	clay	
3.92	436	1383	organic material	
4.17	443	1141	clayey silt to silty clay	
4.68	441	1126	organic material	
4.93	445	1090	organic material	
5.03	438	1128	silty clay to clay	
5.28	438	1184	clay	
5.47	441	87	clay	
5.72	436	1335	organic material	
5.98	432	1491	clay	
6.23	438	1498	clay	
6.49	436	1453	clay	
6.74	441	1519	clay	
6.99	447	1381	clay	
7.23	441	1291	clay	
7.48	441	1241	clay	
7.73	441	1256	clay	
7.98	436	1252	clay	
8.23	445	1321	clay	
8.48	438	1375	clay	
8.61	443	1400	organic material	
8.74	441	1289	organic material	
8.99	443	1194	organic material	
9.23	438	1340	organic material	
9.48	445	1416	organic material	
9.72	447	1354	organic material	
9.98	447	1365	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4505.CSV	North Coordinate (feet):	175548.42
Date Started:	Friday, September 08, 1995	East Coordinate (feet):	385893.86
Time Started:	4:48 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.23	445	1383	clay	
10.48	453	1395	clay	
11.23	443	1223	clay	
11.48	443	1353	clay	
11.73	443	1358	clayey silt to silty clay	
11.98	445	1457	clay	
12.23	441	1396	clay	
12.48	441	1353	organic material	
12.73	447	1334	organic material	
12.98	441	1290	organic material	
13.23	445	1313	clay	
13.48	434	1372	clayey silt to silty clay	
13.73	453	1311	silty clay to clay	
13.98	438	1380	sandy silt to silty clay	
14.37	443	1496	clayey silt to silty clay	
14.61	449	1566	clay	
14.86	445	1469	clay	
15.11	447	1445	clay	
15.31	438	1455	clay	
15.56	445	1410	clay	
15.81	438	1383	clay	
16.05	430	1333	clayey silt to silty clay	
16.31	445	1298	sand to silty sand	
16.57	436	1769	sand to silty sand	
16.82	436	1333	clay	
17.07	441	1268	clay	
17.32	445	1395	sandy silt to silty clay	
17.83	443	1322	clay	
18.03	445	1414	clay	
18.29	436	1326	sand to silty sand	
18.54	447	1448	clayey silt to silty clay	
18.74	445	1305	clay	
19.24	438	1313	silty clay to clay	
19.49	445	1263	clay	
19.74	438	1289	sandy silt to silty clay	
19.99	441	1264	clayey silt to silty clay	
20.24	443	1239	silty sand to sandy silt	
20.48	436	1184	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

North Coordinate (feet): 175548.42
 East Coordinate (feet): 385893.86
 Date Started: Friday, September 08, 1995
 Elevation (feet): 0
 Time Started: 4:48 PM
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
20.72	451	1233	silty sand to sandy silt	
20.97	451	1240	silty sand to sandy silt	
21.23	443	1131	clayey silt to silty clay	
21.48	455	2221	silty clay to clay	
21.73	443	1885	sandy silt to silty clay	
21.87	462	1638	silty sand to sandy silt	
22.36	453	1556	silty sand to sandy silt	
22.47	441	1563	silty sand to sandy silt	
22.61	447	1525	sand to silty sand	
22.82	441	1425	sand to silty sand	
23.06	443	1280	silty sand to sandy silt	
23.31	451	1266	clayey silt to silty clay	
23.82	457	1462	sandy silt to silty clay	
24.07	447	1337	sandy silt to silty clay	
24.31	447	1095	silty sand to sandy silt	
24.50	453	1276	sand to silty sand	
24.74	468	1377	sand	
25.20	441	1224	clayey silt to silty clay	
25.45	445	1298	sandy silt to silty clay	
25.69	449	1186	clayey silt to silty clay	
25.94	443	1226	clay	
26.02	455	1252	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4506.CSV
 Date Started: Friday, September 08, 1995
 Time Started: 5:26 PM
 North Coordinate (feet): 175438.77
 East Coordinate (feet): 385908.19
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.15	441	2274	sandy silt to silty clay	
0.39	438	2638	sand to silty sand	
0.52	405	2438	sand to silty sand	
0.76	411	2350	sand to silty sand	
0.92	411	2247	silty sand to sandy silt	
1.04	405	2140	silty sand to sandy silt	
1.26	405	2255	sand to silty sand	
1.51	436	2260	sand to silty sand	
1.59	464	1570	silty sand to sandy silt	
1.83	457	259	silty sand to sandy silt	
2.33	460	1400	silty sand to sandy silt	
2.57	464	1308	sand to silty sand	
2.82	472	1441	sand	
3.07	462	1227	sand	
3.32	466	897	sand to silty sand	
3.56	447	841	sand to silty sand	
4.06	466	894	silty sand to sandy silt	
4.30	457	842	sandy silt to silty clay	
4.55	436	777	clayey silt to silty clay	
4.70	464	839	sandy silt to silty clay	
4.85	449	819	silty sand to sandy silt	
5.09	462	816	sand to silty sand	
5.33	457	843	silty sand to sandy silt	
5.58	438	835	clayey silt to silty clay	
5.83	455	837	sandy silt to silty clay	
6.07	453	846	sandy silt to silty clay	
6.31	462	842	sandy silt to silty clay	
6.57	457	826	sandy silt to silty clay	
6.81	449	860	clayey silt to silty clay	
7.32	453	869	silty sand to sandy silt	
7.57	447	996	sandy silt to silty clay	
7.82	457	800	sandy silt to silty clay	
8.07	464	803	clayey silt to silty clay	
8.18	443	816	clayey silt to silty clay	
8.43	455	841	sandy silt to silty clay	
8.68	445	902	clayey silt to silty clay	
8.93	466	817	sandy silt to silty clay	
9.17	434	911	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4506.CSV	North Coordinate (feet):	175438.77
Date Started:	Friday, September 08, 1995	East Coordinate (feet):	385908.19
Time Started:	5:26 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.42	460	1062	silty clay to clay	
9.67	466	901	sandy silt to silty clay	
9.92	453	899	sandy silt to silty clay	
10.17	460	917	silty sand to sandy silt	
10.67	453	812	sandy silt to silty clay	
10.93	453	856	clayey silt to silty clay	
11.18	443	818	sandy silt to silty clay	
11.43	453	866	sandy silt to silty clay	
11.64	447	887	clayey silt to silty clay	
12.15	460	866	clayey silt to silty clay	
12.40	466	870	silty clay to clay	
12.65	445	814	sandy silt to silty clay	
12.90	449	832	sandy silt to silty clay	
13.16	479	813	clayey silt to silty clay	
13.41	455	882	clayey silt to silty clay	
13.66	487	763	sandy silt to silty clay	
13.91	447	882	silty clay to clay	
14.16	476	835	sandy silt to silty clay	
14.40	462	960	clay	
14.65	445	938	clay	
14.82	453	953	silty clay to clay	
15.07	472	856	sandy silt to silty clay	
15.31	453	934	clayey silt to silty clay	
15.47	455	965	clayey silt to silty clay	
15.61	466	945	silty sand to sandy silt	
15.76	455	811	silty sand to sandy silt	
16.01	449	864	sandy silt to silty clay	
16.26	466	842	clay	
16.51	457	825	clayey silt to silty clay	
16.76	447	838	sandy silt to silty clay	
17.27	449	823	clay	
17.52	481	878	silty clay to clay	
17.97	447	915	gravely sand to sand	
18.17	460	884	clay	
18.36	449	799	clay	
18.61	462	850	sandy silt to silty clay	
18.87	460	858	clayey silt to silty clay	
19.12	472	857	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4506.CSV
 Date Started: Friday, September 08, 1995
 Time Started: 5:26 PM
 North Coordinate (feet): 175438.77
 East Coordinate (feet): 385908.19
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.37	449	813	clayey silt to silty clay	
19.62	436	874	sandy silt to silty clay	
19.94	455	875	sandy silt to silty clay	
20.12	466	882	sand	
20.36	466	913	sand	
20.60	466	911	sandy silt to silty clay	
20.76	457	819	silty clay to clay	
20.87	445	851	clay	
21.13	468	922	silty sand to sandy silt	
21.37	476	899	sand to silty sand	
21.61	436	760	organic material	
21.86	445	876	sand to silty sand	
22.11	443	775	sandy silt to silty clay	
22.36	472	840	sandy silt to silty clay	
22.61	455	965	clay	
22.86	466	955	sand	
23.11	455	1195	sand to silty sand	
23.36	453	952	sandy silt to silty clay	
23.86	472	1156	sandy silt to silty clay	
24.11	470	963	sandy silt to silty clay	
24.36	462	951	sandy silt to silty clay	
24.61	447	921	clayey silt to silty clay	
24.82	462	693	clay	
25.06	466	890	clay	
25.30	464	967	clay	
25.55	457	861	clay	
25.80	462	948	clay	
26.05	468	947	clayey silt to silty clay	
26.31	470	846	silty sand to sandy silt	
26.55	445	775	clayey silt to silty clay	
26.80	449	931	clay	
27.05	476	884	clay	
27.31	453	940	clay	
27.80	441	897	clay	
27.96	479	933	clay	
28.20	445	901	clay	
28.45	470	936	clay	
28.70	457	929	clayey silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id TK4506.CSV

North Coordinate (feet): 175438.77

Date Started: Friday, September 08, 1995

East Coordinate (feet): 385908.19

Time Started: 5.26 PM

Elevation (feet): 0

Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
28.94	455	887	silty sand to sandy silt	
29.19	472	1088	sandy silt to silty clay	
29.44	483	1783	clay	
29.69	510	5083	silty clay to clay	
29.94	498	3091	clayey silt to silty clay	
30.45	510	2836	clay	
30.85	506	3515	sandy silt to silty clay	
31.11	502	4293	sandy silt to silty clay	
31.24	504	4083	sandy silt to silty clay	
31.49	508	3713	clay	
31.74	457	1555	clay	
32.00	447	1095	clayey silt to silty clay	
32.24	466	1097	clay	
32.49	502	6449	clay	
32.74	506	3066	clay	
32.91	514	3216	silty clay to clay	
33.09	519	4870	clayey silt to silty clay	
33.25	514	4785	clay	
33.36	504	3520	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4507.CSV	North Coordinate (feet):	175420.87
Date Started:	Friday, September 08, 1995	East Coordinate (feet):	385807.44
Time Started:	6:11 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	462	4803	sand to silty sand	
0.43	472	2421	sand to silty sand	
0.67	462	2107	sand	
0.92	466	2195	silty sand to sandy silt	
1.17	470	2095	sand to silty sand	
1.29	470	1930	sand to silty sand	
1.52	453	1618	sand	
1.77	476	1018	sand to silty sand	
2.03	462	838	sand	
2.28	468	900	sand to silty sand	
2.64	468	743	silty sand to sandy silt	
2.89	481	762	sand to clayey sand	
3.14	472	885	silty sand to sandy silt	
3.39	460	813	sand to silty sand	
3.64	474	866	sandy silt to silty clay	
3.79	466	776	silty sand to sandy silt	
4.04	464	797	sand to silty sand	
4.28	441	719	sandy silt to silty clay	
4.53	453	692	sand	
4.61	468	719	sand	
4.73	464	614	sand	
4.98	474	740	silty sand to sandy silt	
5.21	436	591	silty sand to sandy silt	
5.46	464	548	sand to clayey sand	
5.55	474	540	sandy silt to silty clay	
5.77	464	532	sandy silt to silty clay	
5.94	453	598	sandy silt to silty clay	
6.18	455	557	sandy silt to silty clay	
6.43	445	544	sandy silt to silty clay	
6.67	470	494	sandy silt to silty clay	
7.14	464	492	silty sand to sandy silt	
7.39	466	502	sand to silty sand	
7.64	449	517	sand to silty sand	
7.89	460	622	sand to silty sand	
7.98	485	656	very stiff fine grained	
8.20	466	544	sandy silt to silty clay	
8.41	453	630	sandy silt to silty clay	
8.54	466	640	clayey silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4507.CSV	North Coordinate (feet):	175420.87
Date Started:	Friday, September 08, 1995	East Coordinate (feet):	385807.44
Time Started:	6:11 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
8.71	438	613	clayey silt to silty clay	
8.96	462	638	sandy silt to silty clay	
9.21	457	640	sand to silty sand	
9.37	481	596	sand to silty sand	
9.67	445	690	silty sand to sandy silt	
9.84	455	508	silty sand to sandy silt	
10.09	453	579	silty sand to sandy silt	
10.34	445	603	silty sand to sandy silt	
10.59	441	557	silty sand to sandy silt	
10.83	455	649	sandy silt to silty clay	
11.08	453	644	sandy silt to silty clay	
11.28	447	640	silty sand to sandy silt	
11.45	453	601	sandy silt to silty clay	
11.64	453	677	sandy silt to silty clay	
11.79	457	681	sand to silty sand	
12.04	453	578	very stiff fine grained	
12.29	457	551	very stiff fine grained	
12.53	453	604	sandy silt to silty clay	
12.78	443	603	sandy silt to silty clay	
13.02	466	531	sandy silt to silty clay	
13.28	460	484	silty sand to sandy silt	
13.73	455	501	very stiff fine grained	
13.91	432	520	very stiff fine grained	
14.10	457	629	clayey silt to silty clay	
14.35	470	608	sandy silt to silty clay	
14.60	468	586	clayey silt to silty clay	
14.84	443	538	sandy silt to silty clay	
15.08	445	532	clay	
15.33	457	482	clay	
15.58	447	480	clayey silt to silty clay	
15.83	460	475	sandy silt to silty clay	
16.32	436	578	clayey silt to silty clay	
16.57	476	582	clayey silt to silty clay	
16.81	462	570	clayey silt to silty clay	
17.06	447	594	sandy silt to silty clay	
17.31	447	746	silty clay to clay	
17.56	466	726	silty sand to sandy silt	
17.80	464	687	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4507.CSV	North Coordinate (feet):	175420.87
Date Started:	Friday, September 08, 1995	East Coordinate (feet):	385807.44
Time Started:	6.11 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
17.97	468	689	sandy silt to silty clay	
18.22	472	679	silty sand to sandy silt	
18.46	457	694	silty sand to sandy silt	
18.76	460	699	sandy silt to silty clay	
19.01	447	723	silty clay to clay	
19.25	455	713	silty sand to sandy silt	
19.51	449	744	sandy silt to silty clay	
19.76	483	733	silty sand to sandy silt	
20.00	474	793	sandy silt to silty clay	
20.50	479	816	clayey silt to silty clay	
20.74	476	749	sand	
20.99	457	781	sand to silty sand	
21.24	464	745	sandy silt to silty clay	
21.47	455	660	sandy silt to silty clay	
21.73	464	642	sandy silt to silty clay	
21.98	457	672	sandy silt to silty clay	
22.23	462	756	clayey silt to silty clay	
22.48	453	679	clayey silt to silty clay	
22.68	447	745	clay	
22.93	460	748	silty clay to clay	
23.18	457	780	silty sand to sandy silt	
23.67	464	700	sandy silt to silty clay	
23.93	468	598	sandy silt to silty clay	
24.43	466	660	silty clay to clay	
24.58	474	739	silty clay to clay	
24.83	445	646	clay	
25.07	474	673	clayey silt to silty clay	
25.32	489	682	clay	
25.54	449	704	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4801.CSV	North Coordinate (feet):	174868.96
Date Started:	Monday, August 28, 1995	East Coordinate (feet):	384926.69
Time Started:	8:02 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.11	460	3223	silty sand to sandy silt	
0.26	487	2738	sand to silty sand	
0.41	455	2242	sand	
0.67	470	2017	sand to silty sand	
0.92	451	1666	silty sand to sandy silt	
1.08	460	1193	sand to silty sand	
1.34	468	1196	silty sand to sandy silt	
1.59	472	1551	sand	
1.80	470	1066	sand	
2.06	441	777	silty sand to sandy silt	
2.57	455	697	sand to silty sand	
2.83	468	726	silty sand to sandy silt	
3.08	443	726	silty sand to sandy silt	
3.59	430	728	silty sand to sandy silt	
3.85	462	902	sand to silty sand	
4.10	443	1045	clay	
4.36	464	976	clayey silt to silty clay	
4.60	462	976	silty sand to sandy silt	
4.85	438	907	silty sand to sandy silt	
5.11	462	787	silty sand to sandy silt	
5.37	447	728	silty sand to sandy silt	
5.60	466	697	silty sand to sandy silt	
5.79	462	777	silty sand to sandy silt	
6.04	443	700	silty sand to sandy silt	
6.29	476	728	silty sand to sandy silt	
6.54	441	685	silty sand to sandy silt	
6.72	438	690	sand to silty sand	
6.96	430	667	sandy silt to silty clay	
7.22	457	674	sandy silt to silty clay	
7.47	464	779	sand to silty sand	
7.73	457	738	sand to silty sand	
7.98	447	654	sand	
8.23	430	751	silty clay to clay	
8.48	449	813	clay	
8.73	443	754	sand to silty sand	
8.99	462	682	sand	
9.24	445	869	sand	
9.75	451	795	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4801.CSV	North Coordinate (feet):	174868.96
Date Started:	Monday, August 28, 1995	East Coordinate (feet):	384926.69
Time Started:	8:02 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.50	436	636	silty sand to sandy silt	
10.75	451	664	silty sand to sandy silt	
11.00	447	634	sandy silt to silty clay	
11.24	470	572	silty sand to sandy silt	
11.49	460	577	silty sand to sandy silt	
11.75	464	554	silty sand to sandy silt	
12.01	447	749	very stiff fine grained	
12.25	470	1375	clayey silt to silty clay	
12.51	489	1209	sand to silty sand	
12.76	483	1127	sand to silty sand	
12.99	468	925	sand to silty sand	
13.49	453	989	sand to silty sand	
13.67	455	846	sandy silt to silty clay	
13.86	495	1807	clayey silt to silty clay	
14.10	514	14953	silty clay to clay	
14.28	512	19451	sandy silt to silty clay	
14.53	500	10088	sand	
14.77	487	5964	sand	
15.03	466	1534	sand to silty sand	
15.27	457	726	silty sand to sandy silt	
15.52	504	1761	silty sand to sandy silt	
15.77	498	3315	sand to silty sand	
16.03	428	856	sand	
16.27	443	1372	silty sand to sandy silt	
16.52	455	1061	sandy silt to silty clay	
16.78	462	1002	sandy silt to silty clay	
17.04	470	984	silty sand to sandy silt	
17.30	470	1130	sand to silty sand	
17.55	502	2408	sand to silty sand	
17.75	504	8304	silty sand to sandy silt	
17.88	514	12964	sand to silty sand	
18.01	519	8043	silty sand to sandy silt	
18.26	504	9145	sand to silty sand	
18.43	481	3019	silty sand to sandy silt	
18.68	506	3842	sandy silt to silty clay	
18.93	506	3469	silty sand to sandy silt	
19.11	506	1871	silty sand to sandy silt	
19.36	510	1595	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4801.CSV	North Coordinate (feet):	174868.96
Date Started:	Monday, August 28, 1995	East Coordinate (feet):	384926.69
Time Started:	8:02 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.61	506	5021	sandy silt to silty clay	
19.86	514	18827	sand	
20.11	514	21281	sand to silty sand	
20.37	506	2837	very stiff fine grained	
20.62	514	13862	clay	
20.87	523	62878	sand to silty sand	
20.98	510	95777	sand to silty sand	
21.23	519	76150	sand to silty sand	
21.48	508	41147	sand to silty sand	
21.73	510	19121	clay	
21.98	498	1807	clayey silt to silty clay	
22.23	462	968	clay	
22.49	487	971	clay	
22.75	460	945	silty clay to clay	
22.99	436	1247	sandy silt to silty clay	
23.08	460	1868	silty sand to sandy silt	
23.57	510	4463	sand to silty sand	
23.81	529	7618	silty sand to sandy silt	
24.07	529	8232	clayey silt to silty clay	
24.22	510	3875	silty clay to clay	
24.47	517	4192	sand to silty sand	
24.71	512	4126	clayey silt to silty clay	
25.21	519	17666	silty sand to sandy silt	
25.47	523	19642	clayey silt to silty clay	
25.72	521	44987	sand to silty sand	
25.97	508	29695	sand to silty sand	
26.23	529	11870	silty sand to sandy silt	
26.73	523	18436	clayey silt to silty clay	
26.98	531	29634	clay	
27.23	523	32137	clayey silt to silty clay	
27.47	523	17500	sandy silt to silty clay	
27.62	523	14056	sand to silty sand	
27.87	523	10446	sand to silty sand	
28.13	525	9858	sandy silt to silty clay	
28.38	508	8140	silty sand to sandy silt	
28.89	523	7762	sand to silty sand	
29.14	527	7396	sand to silty sand	
29.39	527	8807	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4801.CSV	North Coordinate (feet):	174868.96
Date Started:	Monday, August 28, 1995	East Coordinate (feet):	384926.69
Time Started:	8:02 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
29.64	523	22575	sandy silt to silty clay	
30.14	514	7373	silty sand to sandy silt	
30.39	521	3070	sandy silt to silty clay	
30.64	521	5486	sandy silt to silty clay	
30.90	523	12364	silty sand to sandy silt	
30.99	531	16459	sandy silt to silty clay	
31.24	527	17518	silty sand to sandy silt	
31.49	512	26277	silty sand to sandy silt	
31.75	521	31730	silty sand to sandy silt	
31.99	529	11195	silty sand to sandy silt	
32.13	525	11924	sand	
32.39	519	11262	sand to silty sand	
32.64	510	14688	clay	
32.89	512	24226	sandy silt to silty clay	
33.03	504	6872	silty sand to sandy silt	
33.53	506	4906	clayey silt to silty clay	
33.79	508	3980	clayey silt to silty clay	
34.04	500	4006	sand to silty sand	
34.29	502	5494	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4802.CSV	North Coordinate (feet):	174844.2
Date Started:	Monday, August 28, 1995	East Coordinate (feet):	384945.02
Time Started:	8:58 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.18	470	2259	sand to silty sand	
0.30	466	2215	sand	
0.40	466	1828	sand	
0.49	472	1250	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4803.CSV	North Coordinate (feet):	174863.64
Date Started:	Monday, August 28, 1995	East Coordinate (feet):	384910.23
Time Started:	9:36 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	464	9424	sand to silty sand	
0.40	502	2855	sand	
0.57	483	2907	sand	
0.81	493	2442	sand to silty sand	
1.06	502	1656	sand to silty sand	
1.32	460	1661	sand	
1.49	466	1357	silty sand to sandy silt	
1.74	457	811	silty sand to sandy silt	
1.99	451	913	sand to silty sand	
2.24	436	776	sand to silty sand	
2.49	449	795	sand	
2.75	449	823	sand	
3.00	462	735	sand to silty sand	
3.25	447	726	sand to silty sand	
3.45	438	685	sand to silty sand	
3.62	443	704	sand	
3.87	438	738	sand	
4.12	460	785	sand	
4.37	453	835	sand	
4.62	432	804	sand	
4.81	460	814	sand to silty sand	
5.06	474	778	sand to silty sand	
5.32	443	768	silty sand to sandy silt	
5.57	438	607	sand	
5.82	455	657	sandy silt to silty clay	
6.07	455	704	sandy silt to silty clay	
6.32	466	697	silty sand to sandy silt	
6.56	447	719	clayey silt to silty clay	
6.82	436	787	sandy silt to silty clay	
7.31	476	1939	clayey silt to silty clay	
7.56	487	2069	clayey silt to silty clay	
7.79	464	1692	sandy silt to silty clay	
7.93	460	1908	sandy silt to silty clay	
8.09	470	1965	sandy silt to silty clay	
8.19	466	1870	silty sand to sandy silt	
8.33	462	1720	silty sand to sandy silt	
8.57	460	961	sand	
8.71	445	861	sand to silty sand	

SCAPS LIF and Geotechnical Data

(Tank Farm 4)

Push Id	TK4803.CSV	North Coordinate (feet):	174863 64
Date Started:	Monday, August 28, 1995	East Coordinate (feet):	384910 23
Time Started:	9:36 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
8.83	436	873	sand to silty sand	
9.02	455	792	sand	
9.25	468	733	sand	
9.40	457	747	sand	
9.49	457	709	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4804.CSV
 Date Started: Monday, August 28, 1995
 Time Started: 10:27 AM
 North Coordinate (feet): 174892.68
 East Coordinate (feet): 384931.88
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	462	3422	sand	
0.43	474	1674	sand	
0.60	487	1337	sand	
0.79	493	1201	sand	
0.93	455	1132	sand to silty sand	
1.16	447	936	sand to silty sand	
1.34	441	927	silty sand to sandy silt	
1.59	449	859	sand to silty sand	
1.84	472	934	sand	
2.09	434	903	silty sand to sandy silt	
2.35	470	958	sandy silt to silty clay	
2.60	481	1198	sand to silty sand	
2.86	457	1293	sand	
3.11	466	753	sand to silty sand	
3.62	455	762	sand to silty sand	
3.87	426	658	sand to silty sand	
4.12	472	755	sand to silty sand	
4.37	432	632	sand to silty sand	
4.57	449	647	sand to silty sand	
4.83	443	718	sand to silty sand	
5.08	474	661	sand to silty sand	
5.33	447	753	sand to silty sand	
5.57	436	698	sand to silty sand	
5.83	464	689	sand to silty sand	
6.07	443	641	sand to silty sand	
6.33	443	617	sand	
6.57	432	617	sand to silty sand	
6.81	449	685	sand to silty sand	
7.06	441	632	sand to silty sand	
7.32	455	669	sand to silty sand	
7.57	474	639	sand to silty sand	
7.76	428	687	sand to silty sand	
8.01	462	617	sand to silty sand	
8.25	436	601	sand to silty sand	
8.51	434	575	sand to silty sand	
8.75	451	694	silty sand to sandy silt	
9.01	436	630	sand to silty sand	
9.25	468	665	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4804.CSV	North Coordinate (feet):	174892.68
Date Started:	Monday, August 28, 1995	East Coordinate (feet):	384931.88
Time Started:	10:27 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.50	441	736	sand	
9.74	449	634	sand	
9.90	451	599	sand	
10.27	460	639	silty sand to sandy silt	
10.52	466	669	sand to silty sand	
10.77	517	1174	sand to silty sand	
11.12	502	6666	sand to silty sand	
11.37	514	8299	silty sand to sandy silt	
11.61	508	13970	sand to silty sand	
11.86	483	2968	sand to silty sand	
12.12	455	1064	gravely sand to sand	
12.37	489	991	sand to silty sand	
12.62	510	25999	silty sand to sandy silt	
12.89	508	30761	silty sand to sandy silt	
13.14	512	40007	silty sand to sandy silt	
13.63	510	22327	sand	
13.88	512	32778	silty sand to sandy silt	
14.15	510	33029	sandy silt to silty clay	
14.39	514	44027	silty sand to sandy silt	
14.58	523	40652	silty sand to sandy silt	
14.83	504	14307	sand to silty sand	
15.08	502	6785	sand to silty sand	
15.33	457	817	sandy silt to silty clay	
15.50	447	1090	silty sand to sandy silt	
15.74	502	3235	silty sand to sandy silt	
15.99	510	34748	sand to silty sand	
16.24	512	29142	silty sand to sandy silt	
16.49	506	10521	sandy silt to silty clay	
16.99	508	9527	silty sand to sandy silt	
17.17	504	3676	sand to silty sand	
17.42	491	6166	sand	
17.67	510	8841	sand	
18.05	504	9344	sandy silt to silty clay	
18.30	525	14118	sandy silt to silty clay	
18.55	512	14439	sand to silty sand	
18.80	510	5381	silty sand to sandy silt	
19.05	500	4764	silty sand to sandy silt	
19.30	512	11709	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4804.CSV	North Coordinate (feet):	174892.68
Date Started:	Monday, August 28, 1995	East Coordinate (feet):	384931.88
Time Started:	10:27 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.55	510	9809	sandy silt to silty clay	
20.31	453	720	sandy silt to silty clay	
20.55	457	751	silty sand to sandy silt	
20.80	455	839	sandy silt to silty clay	
21.06	430	678	sandy silt to silty clay	
21.30	462	868	silty sand to sandy silt	
21.55	523	5489	silty sand to sandy silt	
21.80	512	15411	sand to silty sand	
21.99	504	7096	sand	
22.24	521	8897	silty sand to sandy silt	
22.48	527	27793	sand to silty sand	
22.74	521	12601	sandy silt to silty clay	
22.99	495	2547	clayey silt to silty clay	
23.24	445	921	sandy silt to silty clay	
23.49	451	850	silty sand to sandy silt	
23.75	466	934	silty clay to clay	
24.00	489	1353	silty sand to sandy silt	
24.25	483	696	sand	
24.35	470	800	sand to silty sand	
24.59	455	698	sandy silt to silty clay	
24.84	474	1203	silty sand to sandy silt	
25.09	476	960	sand to silty sand	
25.34	447	888	silty sand to sandy silt	
25.59	453	692	clayey silt to silty clay	
25.77	485	1068	silty clay to clay	
25.98	466	694	clayey silt to silty clay	
26.23	457	506	silty sand to sandy silt	
26.43	430	597	sand to silty sand	
26.59	531	6981	sandy silt to silty clay	
26.84	521	26012	sand to silty sand	
27.08	533	6117	sand	
27.32	527	11636	sand to silty sand	
27.57	523	23134	silty sand to sandy silt	
27.72	521	24017	silty sand to sandy silt	
27.97	529	34541	sand to silty sand	
28.22	514	60917	sand	
28.46	508	39229	sand	
28.54	519	61404	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4804.CSV	North Coordinate (feet):	174892.68
Date Started:	Monday, August 28, 1995	East Coordinate (feet):	384931.88
Time Started:	10:27 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
28.79	525	33450	sand	
28.90	519	12764	sand	
29.16	525	11471	sandy silt to silty clay	
29.41	521	11343	silty sand to sandy silt	
29.66	519	15508	silty sand to sandy silt	
30.16	519	17053	sand to silty sand	
30.41	517	16123	silty sand to sandy silt	
30.66	527	20809	sand	
30.91	519	17357	sand to silty sand	
31.01	519	23087	sand to silty sand	
31.25	523	25853	sand to silty sand	
31.50	523	17814	sand	
31.75	521	12313	sand	
32.01	521	10047	sand to silty sand	
32.26	514	16050	sand to silty sand	
32.51	521	18891	silty sand to sandy silt	
32.76	525	39526	silty sand to sandy silt	
32.95	523	47280	sand to silty sand	
33.20	519	35773	silty sand to sandy silt	
33.45	521	31755	sandy silt to silty clay	
33.70	514	33329	silty sand to sandy silt	
33.96	514	56027	silty sand to sandy silt	
34.35	512	45362	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4805.CSV	North Coordinate (feet):	174939.26
Date Started:	Saturday, September 09, 1995	East Coordinate (feet):	384997.1
Time Started:	7:22 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	472	5532	organic material	
0.41	474	2361	organic material	
0.66	483	1263	organic material	
0.92	466	1090	organic material	
1.12	453	952	organic material	
1.62	470	1221	organic material	
1.87	472	1134	organic material	
2.12	470	1136	organic material	
2.37	466	1100	organic material	
2.62	472	1028	organic material	
2.87	468	1057	organic material	
3.12	464	921	organic material	
3.62	472	1044	organic material	
3.88	474	1209	organic material	
4.11	460	981	organic material	
4.59	451	927	organic material	
4.82	485	950	organic material	
5.06	476	920	organic material	
5.30	474	894	organic material	
5.44	464	840	organic material	
5.61	474	821	organic material	
5.85	460	828	organic material	
6.09	468	837	organic material	
6.34	479	848	organic material	
6.58	457	819	organic material	
6.70	453	837	organic material	
7.09	455	834	organic material	
7.30	466	1123	organic material	
7.52	468	2553	sand to silty sand	
7.77	466	1424	sandy silt to silty clay	
8.27	466	1022	silty sand to sandy silt	
8.51	447	970	clayey silt to silty clay	
8.77	447	961	silty sand to sandy silt	
9.03	464	1017	sand to silty sand	
9.28	466	1075	silty sand to sandy silt	
9.54	455	1101	sandy silt to silty clay	
9.79	470	1009	clayey silt to silty clay	
10.30	438	875	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4805.CSV	North Coordinate (feet):	174939.26
Date Started:	Saturday, September 09, 1995	East Coordinate (feet):	384997.1
Time Started:	7:22 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.51	468	837	clayey silt to silty clay	
10.73	472	915	clayey silt to silty clay	
10.96	483	890	clayey silt to silty clay	
11.13	466	923	clayey silt to silty clay	
11.28	466	974	sandy silt to silty clay	
11.47	468	941	sandy silt to silty clay	
11.88	455	905	sandy silt to silty clay	
12.11	462	892	clay	
12.35	460	975	clay	
12.60	466	996	sand	
12.85	470	943	clayey silt to silty clay	
13.10	455	946	clayey silt to silty clay	
13.60	464	934	sandy silt to silty clay	
13.85	472	1019	clay	
14.11	470	874	clay	
14.28	466	862	clay	
14.38	443	902	silty clay to clay	
14.51	455	976	clay	
14.68	462	810	clayey silt to silty clay	
14.81	449	774	sandy silt to silty clay	
15.04	460	744	silty sand to sandy silt	
15.26	474	776	sandy silt to silty clay	
15.49	468	764	sandy silt to silty clay	
15.71	485	849	silty sand to sandy silt	
15.93	498	989	silty sand to sandy silt	
16.15	483	1028	sand to silty sand	
16.38	472	1073	sand	
16.63	468	929	sand to silty sand	
17.14	506	2000	silty sand to sandy silt	
17.38	474	2086	silty sand to sandy silt	
17.63	476	1182	silty sand to sandy silt	
17.89	502	3009	sand to silty sand	
17.97	489	2073	sand to silty sand	
18.43	487	1236	silty clay to clay	
18.65	502	3016	clay	
18.87	504	7445	sandy silt to silty clay	
19.05	483	1555	sand to silty sand	
19.23	493	3376	sand	

Summary data based on field data that was collected using SCAPS

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4805.CSV	North Coordinate (feet):	174939.26
Date Started:	Saturday, September 09, 1995	East Coordinate (feet):	384997.1
Time Started:	7:22 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.42	468	1108	silty sand to sandy silt	
19.52	476	1026	sandy silt to silty clay	
19.62	483	1476	sandy silt to silty clay	
19.74	466	1329	silty sand to sandy silt	
19.84	470	790	silty sand to sandy silt	
19.94	470	892	silty sand to sandy silt	
20.04	462	961	silty sand to sandy silt	
20.28	470	900	sand to silty sand	
20.43	472	909	sand to silty sand	
20.52	491	2242	silty sand to sandy silt	
20.61	489	1422	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id TK4806.CSV

North Coordinate (feet): 174813.03

East Coordinate (feet): 385043.57

Date Started: Saturday, September 09, 1995

Elevation (feet): 0

Time Started: 8:40 AM

Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.41	457	743	organic material	
1.40	453	693	organic material	
1.58	479	1172	organic material	
1.75	453	1025	organic material	
1.93	457	856	clay	
2.17	470	802	clay	
2.42	462	822	clay	
2.66	474	782	organic material	
2.91	476	1109	clay	
3.17	483	1383	clay	
3.42	457	1150	clay	
3.66	483	1092	clay	
3.92	464	1007	clay	
4.16	468	977	clay	
4.41	460	1122	clay	
4.66	462	1093	organic material	
4.92	466	1128	organic material	
5.13	462	1103	organic material	
5.29	464	1107	organic material	
5.48	466	1088	organic material	
5.63	483	1046	organic material	
5.86	464	1060	organic material	
6.04	472	1002	organic material	
6.28	470	943	organic material	
6.52	468	966	organic material	
6.75	455	961	organic material	
6.99	481	1211	organic material	
7.47	466	1113	sandy silt to silty clay	
7.71	462	1305	sand to silty sand	
7.91	462	1416	silty sand to sandy silt	
8.16	481	1049	sandy silt to silty clay	
8.26	479	1039	sandy silt to silty clay	
8.46	468	1007	sandy silt to silty clay	
8.66	462	958	sandy silt to silty clay	
8.86	474	958	silty sand to sandy silt	
9.05	462	942	silty sand to sandy silt	
9.18	472	916	silty sand to sandy silt	
9.35	474	896	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4806.CSV
 Date Started: Saturday, September 09, 1995
 Time Started: 8:40 AM
 North Coordinate (feet): 174813.03
 East Coordinate (feet): 385043.57
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.76	487	956	sandy silt to silty clay	
9.96	457	934	sandy silt to silty clay	
10.15	472	961	sandy silt to silty clay	
10.35	464	1058	clayey silt to silty clay	
10.73	462	990	silty sand to sandy silt	
10.89	476	873	silty sand to sandy silt	
11.14	470	802	sand to silty sand	
11.39	460	1034	sandy silt to silty clay	
11.51	460	971	very stiff fine grained	
11.76	466	924	silty sand to sandy silt	
12.01	462	933	sand to silty sand	
12.26	472	876	silty sand to sandy silt	
12.76	445	889	silty sand to sandy silt	
13.02	464	837	silty clay to clay	
13.27	466	942	sand to silty sand	
13.48	455	834	silty sand to sandy silt	
13.98	449	850	sandy silt to silty clay	
14.10	468	778	clayey silt to silty clay	
14.33	468	745	clayey silt to silty clay	
14.55	470	826	clayey silt to silty clay	
14.70	455	833	clayey silt to silty clay	
14.85	470	902	silty sand to sandy silt	
15.07	466	843	silty sand to sandy silt	
15.29	466	842	silty sand to sandy silt	
15.52	460	833	silty sand to sandy silt	
15.70	451	899	silty sand to sandy silt	
15.86	447	890	silty sand to sandy silt	
15.95	466	938	sand to silty sand	
16.05	466	905	sand to silty sand	
16.25	451	987	very stiff fine grained	
16.45	445	908	very stiff fine grained	
16.64	500	1100	very stiff fine grained	
16.81	489	1027	silty sand to sandy silt	
17.12	455	988	sand to silty sand	
17.23	455	932	sand to silty sand	
17.44	519	3265	sand to silty sand	
17.57	510	7321	sand to silty sand	
17.75	474	1083	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4806.CSV
 Date Started: Saturday, September 09, 1995
 Time Started: 8:40 AM
 North Coordinate (feet): 174813.03
 East Coordinate (feet): 385043.57
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
17.93	491	1087	gravely sand to sand	
18.03	483	1384	gravely sand to sand	
18.17	504	4662	sand	
18.38	457	1259	sand	
18.51	468	1424	sand to silty sand	
18.70	462	1019	sand to silty sand	
18.87	479	1017	sandy silt to silty clay	
19.04	508	1701	very stiff fine grained	
19.16	506	1653	very stiff fine grained	
19.38	498	1295	sand to silty sand	
19.59	514	3491	sandy silt to silty clay	
19.79	510	3410	clayey silt to silty clay	
19.99	506	14412	sandy silt to silty clay	
20.63	510	10838	sand to silty sand	
20.77	508	14019	silty sand to sandy silt	
20.87	474	1748	sandy silt to silty clay	
21.00	468	1972	clayey silt to silty clay	
21.12	491	3838	sandy silt to silty clay	
21.22	506	5959	sandy silt to silty clay	
21.31	512	8173	sandy silt to silty clay	
21.44	508	5142	sandy silt to silty clay	
21.56	523	10559	clayey silt to silty clay	
21.67	519	10080	clayey silt to silty clay	
21.83	508	13605	sandy silt to silty clay	
21.94	521	6745	sand to silty sand	
22.10	508	6240	sandy silt to silty clay	
22.26	514	5227	sandy silt to silty clay	
22.44	519	4951	silty clay to clay	
22.62	510	4688	clayey silt to silty clay	
22.78	493	4470	clay	
22.95	485	5625	silty sand to sandy silt	
23.12	487	4423	sand	
23.29	483	3341	sand to silty sand	
23.47	512	3167	clayey silt to silty clay	
23.61	521	7419	very stiff fine grained	
23.74	510	8194	clay	
23.92	508	22258	sand to silty sand	
24.10	512	13194	sand	

Summary data based on field data that was collected using SCAPS

SCAPS LIF and G ot chnical Data (Tank Farm 4)

Push Id	TK4806.CSV	North Coordinate (feet):	174813.03
Date Started:	Saturday, September 09, 1995	East Co rdinate (feet):	385043.57
Time Started:	8:40 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
24.31	504	8638	sand	
24.46	504	6492	sand to silty sand	
24.64	508	4939	very stiff fine grained	
24.78	512	5788	very stiff fine grained	
25.01	510	7214	sandy silt to silty clay	
25.22	504	5228	sand to silty sand	
25.43	502	3732	sandy silt to silty clay	
25.62	506	3301	clayey silt to silty clay	
25.79	500	3760	sandy silt to silty clay	
25.95	504	3621	clayey silt to silty clay	
26.08	512	4260	clayey silt to silty clay	
26.28	514	2863	clayey silt to silty clay	
26.44	512	1851	silty sand to sandy silt	
26.66	512	1745	clayey silt to silty clay	
27.09	498	2549	clay	
27.21	504	3033	clayey silt to silty clay	
27.43	491	2707	silty clay to clay	
27.65	502	3259	silty clay to clay	
27.84	493	3799	sandy silt to silty clay	
27.95	502	3053	silty sand to sandy silt	
28.17	466	3418	sandy silt to silty clay	
28.62	498	1490	silty clay to clay	
28.84	504	1919	sandy silt to silty clay	
29.07	470	2259	clay	
29.30	500	2488	clayey silt to silty clay	
29.54	483	1991	clay	
29.79	487	1562	clay	
29.91	495	2319	sandy silt to silty clay	
30.02	472	1777	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4807.CSV
 Date Started: Saturday, September 09, 1995
 Time Started: 10:46 AM
 North Coordinate (feet): 174865.7
 East Coordinate (feet): 385079.43
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.41	470	1478	organic material	
0.60	468	1592	organic material	
0.84	470	1536	organic material	
1.03	472	1269	organic material	
1.54	479	1445	organic material	
2.04	455	1421	organic material	
2.30	487	1495	organic material	
2.80	460	924	organic material	
3.05	472	1008	organic material	
3.57	470	1044	organic material	
4.07	464	898	organic material	
4.32	476	957	organic material	
4.57	474	992	organic material	
4.78	472	909	organic material	
4.95	453	818	organic material	
5.14	455	881	organic material	
5.33	464	887	organic material	
5.52	455	829	organic material	
5.72	466	925	organic material	
5.97	462	1102	organic material	
6.21	460	1058	organic material	
6.47	466	930	organic material	
6.72	474	1081	clay	
6.98	455	1201	sand to silty sand	
7.50	464	920	silty sand to sandy silt	
7.61	455	904	silty sand to sandy silt	
7.85	457	905	sandy silt to silty clay	
8.09	462	953	silty sand to sandy silt	
8.30	462	898	silty sand to sandy silt	
8.39	472	894	sandy silt to silty clay	
8.55	468	822	silty sand to sandy silt	
8.78	457	827	sand to silty sand	
9.02	455	749	sand to silty sand	
9.41	472	772	silty sand to sandy silt	
9.60	460	834	sand to silty sand	
10.02	455	872	sand to silty sand	
10.35	466	848	sand to silty sand	
10.45	464	911	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4807.CSV	North Coordinate (feet):	174865.7
Date Started:	Saturday, September 09, 1995	East Coordinate (feet):	385079.43
Time Started:	10:46 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.53	462	828	sand	
10.63	457	838	sand to silty sand	
10.73	468	851	sand to silty sand	
10.84	453	927	sand	
10.96	466	846	sand to silty sand	
11.06	460	945	sand to silty sand	
11.17	470	876	sand	
11.26	472	1015	sand	
11.34	468	875	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4808.CSV	N rth Coordinate (feet):	174858.85
Date Started:	Saturday, September 09, 1995	East Coordinate (feet):	384886.71
Time Started:	1.46 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	481	1037	organic material	
0.42	468	1356	organic material	
0.66	453	1422	organic material	
0.91	462	1423	organic material	
1.16	455	1450	organic material	
1.39	468	1373	organic material	
1.64	468	1251	organic material	
1.89	483	1252	organic material	
2.14	460	1303	organic material	
2.39	462	1302	organic material	
2.64	483	1703	organic material	
2.88	432	3509	organic material	
3.14	468	1657	organic material	
3.39	466	1361	organic material	
3.90	466	1573	organic material	
4.15	455	1486	organic material	
4.65	466	1264	organic material	
4.75	466	1187	organic material	
4.99	474	965	organic material	
5.11	470	873	organic material	
5.36	483	1184	organic material	
5.61	462	1180	organic material	
5.86	453	1196	organic material	
6.12	447	1191	organic material	
6.37	451	2655	organic material	
6.63	449	1625	organic material	
7.13	455	1889	clay	
7.39	462	1629	clayey silt to silty clay	
7.59	468	1320	sandy silt to silty clay	
7.78	468	1867	silty sand to sandy silt	
7.94	466	1813	sandy silt to silty clay	
8.04	474	977	clayey silt to silty clay	
8.34	462	1100	clayey silt to silty clay	
8.43	453	952	clayey silt to silty clay	
8.55	464	959	clayey silt to silty clay	
8.68	479	1023	clayey silt to silty clay	
8.82	453	867	clayey silt to silty clay	
8.97	445	880	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4808.CSV	North Coordinate (feet):	174858.85
Date Started:	Saturday, September 09, 1995	East Coordinate (feet):	384886.71
Time Started:	1:46 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.09	460	840	sand to silty sand	
9.24	470	865	sand to silty sand	
9.34	455	880	silty sand to sandy silt	
9.46	470	878	silty sand to sandy silt	
9.60	449	812	sand to silty sand	
9.71	468	577	sand to silty sand	
9.83	472	642	sand to silty sand	
9.92	455	650	sand	
10.10	447	722	gravely sand to sand	
10.38	468	552	gravely sand to sand	
10.48	468	519	gravely sand to sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id: TK4809.CSV
 Date Started: Saturday, September 09, 1995
 Time Started: 3:00 PM
 North Coordinate (feet): 174832.66
 East Coordinate (feet): 384900.91
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	476	666	clay	
0.42	462	562	clay	
0.66	464	897	clay	
0.91	449	638	clay	
1.16	449	680	clay	
1.33	470	783	clay	
1.58	453	852	clay	
1.83	460	1002	clay	
2.09	464	821	clay	
2.59	453	766	clay	
2.85	453	939	clay	
3.10	470	1032	clay	
3.35	468	876	clay	
3.60	455	835	clay	
3.85	470	847	clay	
4.10	468	928	clay	
4.35	472	1251	clay	
4.54	462	805	clay	
4.79	453	1366	clay	
5.04	476	1505	clay	
5.29	464	1142	clay	
5.54	457	1157	clay	
5.79	470	1084	clay	
6.04	481	1155	clay	
6.32	474	995	clay	
6.57	476	913	clay	
6.94	491	1150	clay	
7.15	487	1622	sandy silt to silty clay	
7.34	474	1756	sandy silt to silty clay	
7.74	476	1060	silty sand to sandy silt	
7.86	470	843	sand to silty sand	
8.04	466	877	sand to silty sand	
8.27	474	823	sand	
8.44	447	726	sand to silty sand	
8.61	472	676	sand to silty sand	
8.77	462	720	silty sand to sandy silt	
8.91	449	742	sand to silty sand	
9.16	466	713	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 4)

Push Id	TK4809.CSV	North Coordinate (feet):	174832.66
Date Started:	Saturday, September 09, 1995	East Coordinate (feet):	384900.91
Time Started:	3:00 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1679

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.41	474	699	sand	
9.65	457	609	sand	
9.90	432	608	sand to silty sand	
10.34	460	441	sand to clayey sand	
10.52	457	406	sand to clayey sand	

TANK FARM 5

SCAPS LIF AND GEOTECHNICAL DATA

SCAPS LIF and Geotechnical Data (Tank Farm 5)

North Coordinate (feet): 170272
 East Coordinate (feet): 381669.39
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272
 Push Id: TK5001.CSV
 Date Started: Thursday, August 24, 1995
 Time Started: 8:43 AM

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.42	468	875	sandy silt to silty clay	
0.67	470	851	sandy silt to silty clay	
0.82	457	759	sand to clayey sand	
0.97	455	690	sand to clayey sand	
1.22	457	605	very stiff fine grained	
1.46	489	853	very stiff fine grained	
1.71	502	870	very stiff fine grained	
1.97	464	716	silty sand to sandy silt	
2.22	487	409	very stiff fine grained	
2.47	441	421	very stiff fine grained	
2.72	464	3824	very stiff fine grained	
2.97	468	15411	sand	
3.23	462	1657	sand to clayey sand	
3.48	457	615	sand to clayey sand	
3.98	449	409	very stiff fine grained	
4.23	466	356	very stiff fine grained	
4.48	460	368	very stiff fine grained	
4.73	451	401	very stiff fine grained	
4.98	436	416	very stiff fine grained	
5.23	453	351	very stiff fine grained	
5.48	483	346	very stiff fine grained	
5.74	466	3654	very stiff fine grained	
5.94	476	20562	very stiff fine grained	
6.18	483	16507	very stiff fine grained	
6.42	470	54535	clay	
6.68	470	84017	clay	
7.19	483	84593	clay	
7.44	468	225270	very stiff fine grained	
7.70	466	64354	very stiff fine grained	
7.95	460	40137	silty sand to sandy silt	
8.12	455	13659	sand to silty sand	
8.35	455	16059	very stiff fine grained	
8.84	462	16794	very stiff fine grained	
9.10	466	37631	very stiff fine grained	
9.34	472	20211	very stiff fine grained	
9.60	468	45786	very stiff fine grained	
9.86	457	6218	very stiff fine grained	
10.11	476	9050	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

North Coordinate (feet): 170272
 East Coordinate (feet): 381669.39
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272
 Push Id: TK5001.CSV
 Date Started: Thursday, August 24, 1995
 Time Started: 8:43 AM

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.62	483	15255	clay	
10.88	485	16926	clay	
11.13	483	5606	clay	
11.38	468	633	clay	
11.64	453	636	clay	
11.88	487	31247	clay	
12.13	491	19973	clay	
12.39	468	9201	very stiff fine grained	
12.63	464	3613	clayey silt to silty clay	
12.88	481	11506	very stiff fine grained	
13.14	487	35804	clay	
13.39	487	18064	clay	
13.64	470	4050	very stiff fine grained	
13.90	464	2465	very stiff fine grained	
14.15	481	3154	clay	
14.40	483	2468	clay	
14.55	493	1870	clay	
14.79	466	1335	clay	
15.05	498	1177	very stiff fine grained	
15.30	510	3959	clay	
15.56	504	8447	clay	
15.82	508	7360	clay	
15.98	502	3428	very stiff fine grained	
16.23	500	2187	clay	
16.48	506	822	sand to silty sand	
17.00	462	609	silty sand to sandy silt	
17.25	519	2137	clay	
17.50	508	1767	clay	
17.75	476	441	very stiff fine grained	
18.01	470	477	very stiff fine grained	
18.26	506	1055	clay	
18.51	504	26090	clay	
18.76	508	9966	very stiff fine grained	
19.01	512	11622	very stiff fine grained	
19.26	502	13705	clay	
19.52	508	3627	clay	
19.77	506	1730	clayey silt to silty clay	
20.02	470	939	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5001.CSV
 Date Started: Thursday, August 24, 1995
 Time Started: 8:43 AM
 North Coordinate (feet): 170272
 East Coordinate (feet): 381669.39
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
20.50	470	510	clay	
20.72	434	453	very stiff fine grained	
20.95	457	906	clay	
21.16	449	634	clay	
21.32	483	938	clay	
21.82	508	16108	very stiff fine grained	
22.06	506	3830	clay	
22.16	510	2581	clay	
22.41	493	1256	clay	
22.66	500	2242	clay	
22.92	506	1355	silty sand to sandy silt	
23.18	460	627	silty sand to sandy silt	
23.34	464	579	very stiff fine grained	
23.70	508	8551	clay	
23.95	510	16586	clay	
24.15	508	25759	clay	
24.30	510	18666	sand to silty sand	
24.47	508	18181	clay	
24.58	504	16746	clay	
24.68	508	16226	clay	
24.84	510	10697	clay	
24.95	504	7149	clay	
25.09	504	3571	clay	
25.30	485	2714	very stiff fine grained	
25.55	476	1904	very stiff fine grained	
25.81	498	2371	clay	
26.06	504	2030	clay	
26.32	455	1227	very stiff fine grained	
26.53	455	2170	clay	
26.72	438	2394	gravely sand to sand	
26.97	447	2881	gravely sand to sand	
27.22	447	2665	sand	
27.47	455	1954	clay	
27.67	443	2205	very stiff fine grained	
27.87	489	3496	very stiff fine grained	
28.01	472	1823	clay	
28.42	510	2077	clay	
28.67	512	2467	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5001.CSV

Date Started: Thursday, August 24, 1995

Time Started: 8:43 AM

North Coordinate (feet): 170272

East Co rdinate (feet): 381669.39

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
28.93	495	2563	very stiff fine grained	
29.18	508	2158	very stiff fine grained	
29.43	504	1870	very stiff fine grained	
29.59	502	1826	very stiff fine grained	
29.77	493	1582	silty sand to sandy silt	
30.45	481	1515	very stiff fine grained	
30.70	485	1162	clay	
30.95	489	1393	clay	
31.20	506	2421	clay	
31.45	512	2731	clay	
31.69	491	1210	clay	
31.95	476	1317	clay	
32.19	466	1232	clay	
32.45	464	1406	clay	
32.70	489	1321	clayey silt to silty clay	
32.97	481	1362	very stiff fine grained	
33.21	502	1828	very stiff fine grained	
33.72	506	6654	clay	
33.97	462	1403	clay	
34.21	479	955	clay	
34.52	449	1678	very stiff fine grained	
34.73	436	1728	very stiff fine grained	
34.97	453	1827	clay	
35.18	472	2027	clay	
35.40	472	1653	clay	
35.58	445	1965	clay	
35.82	460	1646	clay	
36.07	443	808	very stiff fine grained	
36.24	460	1159	clay	
36.48	457	916	silty sand to sandy silt	
36.93	479	1155	very stiff fine grained	
37.18	504	1811	very stiff fine grained	
37.42	504	2109	silty sand to sandy silt	
37.67	487	2620	very stiff fine grained	
37.79	481	2515	very stiff fine grained	
38.28	483	1908	very stiff fine grained	
38.53	498	2194	sand to clayey sand	
38.78	481	1490	very stiff fine grained	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5001.CSV	North Coordinate (feet):	170272
Date Started:	Thursday, August 24, 1995	East Coordinate (feet):	381669 39
Time Started:	8:43 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
39.02	468	2140	very stiff fine grained	
39.25	468	1947	clay	
39.34	466	2025	very stiff fine grained	
39.59	698	95	very stiff fine grained	
39.84	700	104	very stiff fine grained	
40.10	698	86	very stiff fine grained	
40.35	700	84	very stiff fine grained	
40.46	700	81	very stiff fine grained	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5002.CSV	North C ordinate (feet):	170257.52
Date Started:	Thursday, August 24, 1995	East Co rdinate (feet):	381679.54
Time Started:	2:33 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	424	688	sensitive fine grained	
0.41	466	1353	silty sand to sandy silt	
0.65	449	1543	sand	
0.91	424	1871	sand to silty sand	
1.11	449	1384	sand	
1.35	432	1102	sand	
1.60	432	981	sand to silty sand	
1.85	460	1964	sand to silty sand	
2.09	460	1859	silty sand to sandy silt	
2.34	462	1916	sandy silt to silty clay	
2.59	457	2361	sandy silt to silty clay	
2.84	451	2163	sand to silty sand	
3.08	464	2289	silty sand to sandy silt	
3.33	472	1623	sand to silty sand	
3.44	453	1565	silty sand to sandy silt	
3.69	462	1497	sandy silt to silty clay	
3.93	466	2329	sand to silty sand	
4.18	460	2150	clayey silt to silty clay	
4.44	464	9095	clay	
4.53	483	29917	clay	
4.62	483	44680	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5003.CSV
 Date Started: Thursday, August 24, 1995
 Time Started: 3:58 PM
 North Coordinate (feet): 170254.37
 East Coordinate (feet): 381671.25
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	468	1145	silty sand to sandy silt	
0.40	468	948	sand to silty sand	
0.51	464	1053	sand	
0.73	457	1152	sand	
0.98	462	870	sand	
1.23	470	866	sand to silty sand	
1.48	460	797	sand to silty sand	
1.60	449	893	sand to silty sand	
1.85	487	852	silty sand to sandy silt	
2.35	504	841	sand to silty sand	
2.60	487	744	sand	
2.85	483	761	sand	
3.09	472	760	sand to clayey sand	
3.34	462	582	sand to silty sand	
3.59	462	343	very stiff fine grained	
4.08	457	408	sandy silt to silty clay	
4.33	468	2279	sandy silt to silty clay	
4.57	455	10704	sandy silt to silty clay	
4.81	460	19674	sandy silt to silty clay	
4.92	464	830	silty sand to sandy silt	
5.17	457	790	sand to silty sand	
5.41	464	3612	silty sand to sandy silt	
5.66	470	8189	silty sand to sandy silt	
5.90	457	10403	silty sand to sandy silt	
6.15	464	1356	sand to silty sand	
6.40	441	1381	clayey silt to silty clay	
6.65	449	660	sandy silt to silty clay	
6.90	455	520	silty sand to sandy silt	
7.39	466	10266	sandy silt to silty clay	
7.64	455	2893	silty sand to sandy silt	
7.83	449	579	sand to silty sand	
8.07	470	545	silty sand to sandy silt	
8.22	487	487	silty sand to sandy silt	
8.47	464	514	sandy silt to silty clay	
8.71	464	2439	clayey silt to silty clay	
9.20	487	24883	silty sand to sandy silt	
9.45	487	17833	sandy silt to silty clay	
9.65	464	3757	silty clay to clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5003.CSV

North Coordinate (feet): 170254.37

Date Started: Thursday, August 24, 1995

East Co rdinate (feet): 381671.25

Time Started: 3:58 PM

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.90	470	782	clayey silt to silty clay	
10.14	483	9000	sandy silt to silty clay	
10.40	491	26838	clay	
10.64	502	58638	clayey silt to silty clay	
10.89	504	14633	silty sand to sandy silt	
11.14	502	8566	clay	
11.39	476	3756	clay	
11.54	483	8562	silty clay to clay	
11.78	502	42901	sand	
12.03	487	27396	sand to silty sand	
12.27	491	38204	silty sand to sandy silt	
12.41	487	41792	sand to silty sand	
12.91	483	41491	sandy silt to silty clay	
13.16	483	37099	sand to silty sand	
13.41	504	48128	clayey silt to silty clay	
13.66	504	29357	sand to silty sand	
14.16	500	44820	silty sand to sandy silt	
14.40	504	45895	sandy silt to silty clay	
14.65	502	45541	sand to silty sand	
14.76	504	39042	silty sand to sandy silt	
15.00	504	50036	silty sand to sandy silt	
15.24	504	51043	silty sand to sandy silt	
15.49	508	11147	silty sand to sandy silt	
15.74	504	11730	sand to silty sand	
15.99	504	11860	silty sand to sandy silt	
16.23	500	11838	silty sand to sandy silt	
16.40	506	18710	clay	
16.62	510	13995	clay	
16.86	512	6445	silty clay to clay	
17.12	508	2744	silty sand to sandy silt	
17.36	502	12631	silty sand to sandy silt	
17.62	508	51835	sandy silt to silty clay	
17.87	510	59333	sand to silty sand	
18.10	508	24074	silty clay to clay	
18.35	504	25036	sand to silty sand	
18.85	487	7730	silty sand to sandy silt	
19.05	502	10247	clayey silt to silty clay	
19.29	504	14396	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5003.CSV

North Coordinate (feet): 170254.37

Date Started: Thursday, August 24, 1995

East Coordinate (feet): 381671.25

Time Started: 3:58 PM

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretati n
19.52	510	17455	sand to silty sand	
19.72	508	17705	silty sand to sandy silt	
19.97	508	38200	sandy silt to silty clay	
20.34	514	11805	silty sand to sandy silt	
20.53	508	18574	sand	
20.67	510	20824	sand to silty sand	
20.91	510	22052	silty clay to clay	
21.09	504	23103	sandy silt to silty clay	
21.28	500	5021	sandy silt to silty clay	
21.45	468	5322	sand to silty sand	
21.69	487	5060	sand	
21.84	504	4940	clay	
21.98	500	4011	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5004.CSV

Date Started: Thursday, August 24, 1995

Time Started: 5:18 PM

North Coordinate (feet): 170245.08

East Coordinate (feet): 381646.51

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.08	476	712	sensitive fine grained	
0.33	470	1279	sand	
0.57	464	923	sand	
0.82	466	697	silty sand to sandy silt	
1.07	470	654	silty sand to sandy silt	
1.21	485	634	sand	
1.32	441	864	sand	
1.73	470	468	gravely sand to sand	
1.88	468	370	gravely sand to sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5005.CSV

North Coordinate (feet): 170234.78

East Coordinate (feet): 381627.96

Date Started: Thursday, August 24, 1995

Elevation (feet): 0

Time Started: 5.39 PM

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	489	1098	sand to silty sand	
0.41	483	767	sand to silty sand	
0.63	470	635	sand	
0.81	468	619	gravely sand to sand	
0.99	481	617	sand	
1.11	455	550	sand	
1.28	462	592	sand	
1.38	476	589	sand to silty sand	
1.62	487	587	sand to silty sand	
1.86	476	532	silty sand to sandy silt	
2.11	476	617	sand to silty sand	
2.55	489	550	sandy silt to silty clay	
2.79	483	539	sand to silty sand	
3.05	472	382	gravely sand to sand	
3.29	468	413	sand to clayey sand	
3.79	491	434	silty sand to sandy silt	
4.02	485	441	sand	
4.26	468	441	gravely sand to sand	
4.51	489	384	sand	
4.63	483	342	sand	
4.86	476	335	sand to silty sand	
5.11	464	307	sandy silt to silty clay	
5.37	449	258	sand to silty sand	
5.61	462	354	sandy silt to silty clay	
5.85	495	342	sandy silt to silty clay	
6.09	483	634	clayey silt to silty clay	
6.34	485	820	clayey silt to silty clay	
6.59	485	783	sandy silt to silty clay	
7.08	468	715	silty sand to sandy silt	
7.18	483	626	sandy silt to silty clay	
7.42	498	576	silty sand to sandy silt	
7.66	500	756	silty sand to sandy silt	
7.88	457	752	silty sand to sandy silt	
8.02	453	833	silty sand to sandy silt	
8.23	491	958	silty sand to sandy silt	
8.48	468	1129	sand	
8.72	485	526	sand	
8.97	462	630	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5005.CSV
 Date Started: Thursday, August 24, 1995
 Time Started: 5:39 PM
 North C ordinate (feet): 170234.78
 East Coordinate (feet): 381627.96
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.21	472	550	sand to silty sand	
9.46	489	398	sand	
9.71	498	443	sand to silty sand	
9.95	457	356	sand to silty sand	
10.44	472	403	sand	
10.68	489	364	sand	
10.93	474	377	sand	
11.17	495	354	sand to silty sand	
11.34	453	328	sand to silty sand	
11.58	462	364	sand to silty sand	
11.82	472	393	sand to silty sand	
12.04	487	408	sand	
12.52	481	355	sand	
12.77	470	403	sandy silt to silty clay	
13.01	481	360	sandy silt to silty clay	
13.25	481	423	sand to silty sand	
13.49	483	373	silty sand to sandy silt	
13.74	481	354	sandy silt to silty clay	
13.98	476	269	silty sand to sandy silt	
14.23	481	298	very stiff fine grained	
14.47	476	241	sandy silt to silty clay	
14.65	498	253	silty sand to sandy silt	
14.89	457	314	silty sand to sandy silt	
15.14	436	279	silty sand to sandy silt	
15.38	489	260	clayey silt to silty clay	
15.86	481	376	silty sand to sandy silt	
16.10	485	323	silty sand to sandy silt	
16.35	479	350	silty sand to sandy silt	
16.59	466	361	silty sand to sandy silt	
16.83	500	403	sandy silt to silty clay	
17.08	472	439	sandy silt to silty clay	
17.22	485	484	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5006.CSV
 Date Started: Friday, August 25, 1995
 Time Started: 8:53 AM
 North Coordinate (feet): 170239.43
 East Coordinate (feet): 381697.48
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	460	1595	sand	
0.40	493	1415	gravely sand to sand	
0.66	476	1300	sand	
0.91	491	1393	silty sand to sandy silt	
1.16	514	1560	silty sand to sandy silt	
1.41	485	782	sand to silty sand	
1.59	466	735	sand to silty sand	
1.84	472	706	sandy silt to silty clay	
2.09	474	611	silty sand to sandy silt	
2.34	468	543	sandy silt to silty clay	
2.59	460	666	silty sand to sandy silt	
2.85	466	971	sandy silt to silty clay	
3.04	464	869	sandy silt to silty clay	
3.29	476	907	sandy silt to silty clay	
3.50	464	755	sandy silt to silty clay	
3.89	479	498	sand	
4.15	468	476	sand to silty sand	
4.40	470	672	sand to silty sand	
4.65	485	449	silty sand to sandy silt	
4.92	491	404	silty sand to sandy silt	
5.17	508	367	silty sand to sandy silt	
5.41	502	1359	sand	
5.91	466	3137	sand to silty sand	
6.16	462	1613	sandy silt to silty clay	
6.41	472	2121	silty sand to sandy silt	
6.66	481	5600	silty sand to sandy silt	
7.17	464	5007	sand to silty sand	
7.42	481	1135	sand to silty sand	
7.67	474	1508	silty sand to sandy silt	
7.92	485	27412	silty sand to sandy silt	
8.05	487	23311	clayey silt to silty clay	
8.30	483	60093	sandy silt to silty clay	
8.55	485	67076	sand to silty sand	
8.74	483	60912	silty sand to sandy silt	
8.99	485	39195	sandy silt to silty clay	
9.24	472	4086	silty sand to sandy silt	
9.48	491	6021	silty sand to sandy silt	
9.74	481	16930	sandy silt to silty clay	

Summary data based on field data that was collected using SCAPS

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5006.CSV	North Coordinate (feet):	170239.43
Date Started:	Friday, August 25, 1995	East Coordinate (feet):	381697.48
Time Started:	8.53 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.99	470	7740	clayey silt to silty clay	
10.49	483	72520	sand to silty sand	
10.75	483	68136	sand to silty sand	
11.00	487	79046	clayey silt to silty clay	
11.25	470	16010	sandy silt to silty clay	
11.51	472	2409	sand to silty sand	
12.02	470	8559	sandy silt to silty clay	
12.27	466	6005	sandy silt to silty clay	
12.53	468	5269	clayey silt to silty clay	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5007.CSV
 Date Started: Friday, August 25, 1995
 Time Started: 9:37 AM
 North Coordinate (feet): 170199.56
 East Coordinate (feet): 381671.02
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	489	993	sand to silty sand	
0.42	483	891	sand to silty sand	
0.67	472	917	silty sand to sandy silt	
0.93	447	716	silty sand to sandy silt	
1.18	487	768	sand	
1.43	449	829	sand to silty sand	
1.68	453	657	silty clay to clay	
1.93	470	713	clay	
2.19	466	643	sandy silt to silty clay	
2.43	493	677	sandy silt to silty clay	
2.69	487	586	sandy silt to silty clay	
2.94	491	666	sandy silt to silty clay	
3.41	476	738	sandy silt to silty clay	
3.64	487	751	sandy silt to silty clay	
3.83	489	762	sandy silt to silty clay	
4.09	500	678	sandy silt to silty clay	
4.24	498	599	sandy silt to silty clay	
4.51	487	539	silty sand to sandy silt	
4.76	476	709	sandy silt to silty clay	
5.02	476	919	sandy silt to silty clay	
5.26	514	594	sandy silt to silty clay	
5.51	514	566	sand	
5.71	489	354	sand	
5.87	460	2891	sand	
6.11	457	1534	sandy silt to silty clay	
6.36	481	449	silty sand to sandy silt	
6.60	498	518	silty sand to sandy silt	
6.85	500	475	silty sand to sandy silt	
7.10	502	461	sand to silty sand	
7.27	474	471	sand to silty sand	
7.53	487	462	sand to silty sand	
7.79	502	467	sand	
8.04	466	794	silty sand to sandy silt	
8.30	464	465	silty sand to sandy silt	
8.55	470	492	silty sand to sandy silt	
8.80	462	425	sand to silty sand	
8.97	468	2066	silty sand to sandy silt	
9.22	485	8218	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5007.CSV

Date Started: Friday, August 25, 1995

Time Started: 9:37 AM

North Coordinate (feet): 170199.56

East Coordinate (feet): 381671.02

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.98	487	27863	sandy silt to silty clay	
10.24	466	6241	silty sand to sandy silt	
10.37	462	2730	silty sand to sandy silt	
10.61	462	2400	sand to silty sand	
10.77	472	678	silty sand to sandy silt	
11.02	468	2325	sand	
11.22	493	2778	clayey silt to silty clay	
11.39	483	12163	sandy silt to silty clay	
11.63	470	9720	silty sand to sandy silt	
11.89	468	1290	silty sand to sandy silt	
12.15	470	513	silty sand to sandy silt	
12.40	455	522	sand to silty sand	
12.66	483	536	silty sand to sandy silt	
12.90	504	2469	sandy silt to silty clay	
13.15	510	6032	silty sand to sandy silt	
13.33	506	13930	silty sand to sandy silt	
13.58	510	5331	sand	
13.84	489	3282	clay	
14.09	508	19088	sandy silt to silty clay	
14.34	500	10675	sandy silt to silty clay	
14.60	508	26981	silty sand to sandy silt	
14.85	508	32431	silty sand to sandy silt	
15.04	508	40457	sandy silt to silty clay	
15.29	508	62381	sand to silty sand	
15.46	504	63568	sand	
15.72	508	65391	silty sand to sandy silt	
15.98	512	65259	silty sand to sandy silt	
16.22	508	64817	silty sand to sandy silt	
16.67	510	65680	silty sand to sandy silt	
16.87	514	56207	silty sand to sandy silt	
16.96	698	100	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5008.CSV

Date Started: Friday, August 25, 1995

Time Started: 10:16 AM

North Coordinate (feet): 170147.65

East Coordinate (feet): 381641.88

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	481	1124	sand to silty sand	
0.42	485	1090	sand to silty sand	
0.67	500	1260	sand to silty sand	
0.92	491	891	silty sand to sandy silt	
1.05	483	870	silty sand to sandy silt	
1.17	483	971	silty sand to sandy silt	
1.34	495	605	sand to silty sand	
1.58	483	792	sand to silty sand	
1.83	489	746	sand to silty sand	
2.05	455	569	sand to silty sand	
2.16	495	473	sand to silty sand	
2.41	493	573	sand to silty sand	
2.66	481	623	sand to silty sand	
2.92	506	561	sand to silty sand	
3.17	472	688	sand	
3.68	466	447	sand to silty sand	
3.90	491	478	sand to silty sand	
4.07	466	335	silty sand to sandy silt	
4.57	500	392	sandy silt to silty clay	
5.06	498	540	silty sand to sandy silt	
5.27	489	514	sand to silty sand	
5.45	527	434	sand to silty sand	
5.70	495	396	silty sand to sandy silt	
5.95	489	487	sand	
6.19	504	399	silty sand to sandy silt	
6.45	498	395	sandy silt to silty clay	
6.95	472	409	sandy silt to silty clay	
7.20	504	441	silty sand to sandy silt	
7.44	476	413	sand to silty sand	
8.15	481	1070	clay	
8.39	489	1133	silty clay to clay	
8.64	514	783	clayey silt to silty clay	
8.83	483	677	clayey silt to silty clay	
8.94	487	577	clayey silt to silty clay	
9.18	460	594	sandy silt to silty clay	
9.41	538	554	sandy silt to silty clay	
9.66	474	613	sandy silt to silty clay	
9.91	472	815	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5008.CSV

North Coordinate (feet): 170147.65

East Coordinate (feet): 381641.88

Date Started: Friday, August 25, 1995

Elevation (feet): 0

Time Started: 10:16 AM

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.16	489	1067	sand	
10.40	460	874	sand	
10.61	470	610	sand	
10.86	476	551	sand	
11.28	502	288	sand	
11.53	474	359	sand	
11.77	481	381	silty sand to sandy silt	
11.93	495	395	sand to silty sand	
12.18	470	404	sand to silty sand	
12.33	485	405	sand to silty sand	
12.56	472	424	silty sand to sandy silt	
12.69	483	391	silty sand to sandy silt	
12.81	500	405	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5009.CSV
 Date Started: Friday, August 25, 1995
 Time Started: 10:51 AM
 North Coordinate (feet): 170182.2
 East Coordinate (feet): 381654.22
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	476	506	sand to silty sand	
0.42	474	1259	sand	
0.67	468	1205	sand to silty sand	
0.93	523	769	sand to silty sand	
1.18	489	684	silty sand to sandy silt	
1.33	479	849	silty sand to sandy silt	
1.58	487	629	sand to silty sand	
1.83	483	608	silty sand to sandy silt	
2.08	474	619	sand to silty sand	
2.33	508	562	sand to silty sand	
2.58	498	530	sand to silty sand	
2.84	479	612	silty sand to sandy silt	
3.08	487	601	silty sand to sandy silt	
3.33	485	578	silty sand to sandy silt	
3.78	483	548	silty sand to sandy silt	
3.90	493	552	silty sand to sandy silt	
4.08	495	655	silty sand to sandy silt	
4.32	472	602	sandy silt to silty clay	
4.58	485	518	silty sand to sandy silt	
4.82	485	624	silty sand to sandy silt	
5.07	502	497	silty sand to sandy silt	
5.27	481	684	silty sand to sandy silt	
5.52	510	606	sand to silty sand	
5.77	521	823	sand	
6.02	510	571	gravely sand to sand	
6.28	508	1271	sand	
6.52	508	1152	sand	
7.04	504	797	silty sand to sandy silt	
7.29	491	605	silty sand to sandy silt	
7.54	498	617	silty sand to sandy silt	
7.63	481	625	silty sand to sandy silt	
7.80	489	652	sandy silt to silty clay	
7.98	453	1154	sandy silt to silty clay	
8.23	479	728	sand to silty sand	
8.43	483	647	sand	
8.69	468	663	sand	
8.94	470	650	sand to silty sand	
9.07	483	461	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5009.CSV

North Coordinate (feet): 170182.2

East Coordinate (feet): 381654.22

Date Started: Friday, August 25, 1995

Elevation (feet): 0

Time Started: 10:51 AM

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.32	493	465	sand to silty sand	
9.50	493	497	silty sand to sandy silt	
9.75	504	415	silty sand to sandy silt	
9.90	464	465	sand to silty sand	
10.37	485	471	sand	
10.58	481	438	sand to silty sand	
10.82	485	387	sand to silty sand	
11.07	485	346	sand to silty sand	
11.18	498	386	sand to silty sand	
11.43	487	372	sand to silty sand	
11.68	495	410	sand to silty sand	
11.94	453	387	sand	
12.19	487	388	gravely sand to sand	
12.44	485	372	sand	
12.64	476	405	silty sand to sandy silt	
12.89	462	407	sandy silt to silty clay	
13.09	502	367	silty sand to sandy silt	
13.27	485	379	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5010.CSV

North Coordinate (feet): 170217.02

East Coordinate (feet): 381761.03

Date Started: Friday, August 25, 1995

Elevation (feet): 0

Time Started: 2:13 PM

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	468	1449	sand	
0.38	504	1326	sand	
0.63	493	1593	sand	
0.88	474	1032	gravely sand to sand	
1.09	493	826	sand	
1.30	487	623	sand to silty sand	
1.42	466	481	sand to silty sand	
1.67	493	631	silty sand to sandy silt	
1.92	485	672	silty sand to sandy silt	
2.43	466	762	sandy silt to silty clay	
2.69	462	833	silty sand to sandy silt	
2.94	483	454	sand to silty sand	
3.20	493	461	sand	
3.46	455	489	silty sand to sandy silt	
3.97	470	433	sand	
4.22	498	532	sand	
4.47	483	496	sand to silty sand	
4.72	489	509	silty sand to sandy silt	
4.97	489	508	silty sand to sandy silt	
5.22	462	458	sandy silt to silty clay	
5.48	481	494	sandy silt to silty clay	
5.73	498	369	silty sand to sandy silt	
5.98	472	409	sandy silt to silty clay	
6.23	489	344	clay	
6.49	468	462	clayey silt to silty clay	
6.75	466	467	sandy silt to silty clay	
7.27	445	2246	sandy silt to silty clay	
7.52	483	538	silty sand to sandy silt	
7.78	464	1656	sandy silt to silty clay	
8.03	468	16429	silty sand to sandy silt	
8.28	483	24301	silty sand to sandy silt	
8.52	479	4847	silty sand to sandy silt	
8.77	462	2057	clayey silt to silty clay	
9.02	472	1085	sandy silt to silty clay	
9.28	489	7190	sandy silt to silty clay	
9.53	457	2830	sand	
9.77	483	782	sand	
10.03	483	17514	clayey silt to silty clay	

Summary data based on field data that was collected using SCAPS

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5010.CSV

North Coordinate (feet): 170217.02

East Coordinate (feet): 381761.03

Date Started: Friday, August 25, 1995

Elevation (feet): 0

Time Started: 2:13 PM

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.54	485	48581	clayey silt to silty clay	
10.78	487	28108	sandy silt to silty clay	
11.03	481	2591	sandy silt to silty clay	
11.29	483	2541	sandy silt to silty clay	
11.79	462	1755	silty sand to sandy silt	
12.04	466	1387	sandy silt to silty clay	
12.29	470	612	sand to silty sand	
12.55	481	496	silty clay to clay	
12.81	462	665	clayey silt to silty clay	
12.90	474	558	sandy silt to silty clay	
13.15	474	798	sandy silt to silty clay	
13.40	449	636	clayey silt to silty clay	
13.91	457	430	clayey silt to silty clay	
14.16	489	393	clay	
14.42	464	390	silty sand to sandy silt	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

North Co rdinate (feet): 170244.96
 East Coordinate (feet): 381795.1
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272
 Push Id: TK5011.CSV
 Date Started: Friday, August 25, 1995
 Time Started: 2:42 PM

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.18	489	1228	sand	
0.43	491	900	sand to silty sand	
0.62	466	735	silty sand to sandy silt	
0.84	460	904	sandy silt to silty clay	
1.08	485	675	sandy silt to silty clay	
1.33	470	706	silty sand to sandy silt	
1.58	500	685	silty sand to sandy silt	
1.78	508	682	silty sand to sandy silt	
2.03	512	751	silty sand to sandy silt	
2.29	491	680	sandy silt to silty clay	
2.55	487	751	silty sand to sandy silt	
2.81	487	651	sand	
3.06	470	329	sand	
3.32	483	334	sand to silty sand	
3.57	491	350	silty sand to sandy silt	
3.83	472	373	silty sand to sandy silt	
4.28	476	364	silty sand to sandy silt	
4.53	476	379	silty sand to sandy silt	
4.79	500	359	silty sand to sandy silt	
5.04	502	414	silty sand to sandy silt	
5.53	489	6551	sand to silty sand	
5.79	483	20234	sand to silty sand	
6.04	485	15696	silty sand to sandy silt	
6.30	466	12548	silty sand to sandy silt	
6.56	468	12903	silty sand to sandy silt	
6.81	460	6646	silty sand to sandy silt	
7.06	464	9961	sandy silt to silty clay	
7.25	468	22516	silty sand to sandy silt	
7.50	462	19014	silty sand to sandy silt	
7.65	466	3817	silty sand to sandy silt	
7.91	476	8438	sand to silty sand	
8.16	466	5845	silty sand to sandy silt	
8.40	466	3434	sandy silt to silty clay	
8.65	470	11123	silty sand to sandy silt	
8.89	451	2604	silty sand to sandy silt	
9.14	460	1217	silty sand to sandy silt	
9.40	462	421	silty sand to sandy silt	
9.65	464	416	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5011.CSV	North Coordinate (feet):	170244.96
Date Started:	Friday, August 25, 1995	East Coordinate (feet):	381795.1
Time Started:	2:42 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.90	498	1760	sand to silty sand	
10.14	483	6855	sand to silty sand	
10.39	485	5046	sandy silt to silty clay	
10.90	485	437	sandy silt to silty clay	
11.16	462	467	silty clay to clay	
11.41	470	1906	sandy silt to silty clay	
11.84	487	10587	sandy silt to silty clay	
11.99	500	24257	silty sand to sandy silt	
12.24	487	29038	sand to silty sand	
12.43	487	25263	silty sand to sandy silt	
12.55	487	5742	sandy silt to silty clay	
12.65	495	6086	silty sand to sandy silt	
12.90	485	19009	clay	
13.15	487	13729	clay	
13.24	498	10466	clay	
13.49	485	3272	sand to silty sand	
13.74	487	1658	silty sand to sandy silt	
14.25	489	1283	sand to silty sand	
14.49	481	1923	sand	
14.74	483	1795	silty sand to sandy silt	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

North Co rdinate (feet): 170207.46
 East Coordinate (feet): 381783.62
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272
 Push Id: TK5012.CSV
 Date Started: Friday, August 25, 1995
 Time Started: 3:20 PM

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	468	803	sandy silt to silty clay	
0.42	460	789	sandy silt to silty clay	
0.68	438	703	sandy silt to silty clay	
1.43	445	665	sandy silt to silty clay	
1.68	447	669	sandy silt to silty clay	
1.93	453	736	sandy silt to silty clay	
2.18	455	705	sandy silt to silty clay	
2.44	466	868	sandy silt to silty clay	
2.68	460	1340	sandy silt to silty clay	
2.94	455	991	sandy silt to silty clay	
3.19	449	991	sandy silt to silty clay	
3.44	447	834	sandy silt to silty clay	
3.93	457	744	sandy silt to silty clay	
4.19	472	647	sandy silt to silty clay	
4.44	472	686	sandy silt to silty clay	
4.69	445	701	sandy silt to silty clay	
4.80	447	689	sandy silt to silty clay	
5.05	457	753	sandy silt to silty clay	
5.24	443	683	sandy silt to silty clay	
5.45	460	665	silty clay to clay	
5.70	436	670	clayey silt to silty clay	
5.96	472	388	sandy silt to silty clay	
6.18	487	478	sandy silt to silty clay	
6.29	455	530	sandy silt to silty clay	
6.47	462	615	sandy silt to silty clay	
6.65	466	542	sandy silt to silty clay	
6.89	470	579	sandy silt to silty clay	
7.14	479	585	clayey silt to silty clay	
7.39	455	490	sand to silty sand	
7.59	487	417	sand	
7.83	481	412	silty sand to sandy silt	
7.96	485	524	silty sand to sandy silt	
8.21	489	821	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5013.CSV

Date Started: Friday, August 25, 1995

Time Started: 4:13 PM

North C ordinate (feet): 170332.88

East Co rdinate (feet): 381680.88

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.13	500	2344	sand to silty sand	
0.38	508	3085	sand	
0.60	500	2235	sand	
0.85	504	1544	sand to silty sand	
0.94	510	1590	sand to silty sand	
1.17	489	1423	sand	
1.42	483	1190	gravely sand to sand	
1.51	466	1107	sand	
1.76	491	1115	sand	
2.01	485	1026	sand	
2.26	476	585	sand to silty sand	
2.51	483	610	silty sand to sandy silt	
2.71	468	494	silty sand to sandy silt	
2.92	491	950	sand	
3.14	470	577	silty sand to sandy silt	
3.39	489	550	sandy silt to silty clay	
3.63	491	666	sandy silt to silty clay	
3.88	506	477	silty sand to sandy silt	
4.14	483	551	silty sand to sandy silt	
4.39	472	581	sandy silt to silty clay	
4.61	462	522	sand to silty sand	
4.72	472	477	sand to silty sand	
4.83	491	473	silty sand to sandy silt	
5.03	470	517	silty sand to sandy silt	
5.20	506	467	silty sand to sandy silt	
5.67	468	3649	silty sand to sandy silt	
5.91	466	18654	silty sand to sandy silt	
6.07	453	1864	silty sand to sandy silt	
6.32	453	541	sand to silty sand	
6.52	476	456	sand to silty sand	
6.77	462	701	sand to silty sand	
7.28	483	13916	sandy silt to silty clay	
7.53	483	18339	very stiff fine grained	
7.68	466	13225	silty sand to sandy silt	
7.93	462	10825	clayey silt to silty clay	
8.18	449	2543	sandy silt to silty clay	
8.68	470	18578	sand to silty sand	
8.93	466	28538	silty sand to sandy silt	

SCAPS LIF and G otechnical Data (Tank Farm 5)

Push Id:	TK5013.CSV	North Coordinate (feet):	170332.88
Date Started:	Friday, August 25, 1995	East Coordinate (feet):	381680.88
Time Started:	4:13 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.18	466	21681	sandy silt to silty clay	
9.37	483	56590	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5014.CSV
 Date Started: Friday, August 25, 1995
 Time Started: 4:55 PM
 North Coordinate (feet): 170363.54
 East Coordinate (feet): 381694.89
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	449	10589	silty sand to sandy silt	
0.41	506	2008	sand to silty sand	
0.57	525	1841	sand	
0.73	536	2747	sand	
0.91	514	986	sand	
1.15	525	1062	sand	
1.39	504	809	sand	
1.64	506	627	sand	
1.88	462	344	gravely sand to sand	
2.13	500	453	sand	
2.38	487	467	sand to clayey sand	
2.63	472	320	sand to silty sand	
2.87	466	292	gravely sand to sand	
3.11	481	336	sand	
3.36	481	421	sand	
3.60	495	438	sand to silty sand	
4.09	483	357	sand	
4.33	485	370	sand to silty sand	
4.42	487	330	sand to silty sand	
4.66	489	389	sand to silty sand	
4.85	453	635	silty sand to sandy silt	
5.02	453	584	sand to silty sand	
5.13	483	344	sand to silty sand	
5.31	470	365	sand to silty sand	
5.47	487	373	sand to silty sand	
5.60	464	404	silty sand to sandy silt	
5.85	502	343	sand to silty sand	
6.10	483	351	silty sand to sandy silt	
6.34	470	414	sand to silty sand	
6.59	479	387	silty sand to sandy silt	
6.77	489	410	sandy silt to silty clay	
7.02	476	381	sand to silty sand	
7.50	451	426	silty sand to sandy silt	
7.75	483	335	sand to silty sand	
7.99	487	368	sandy silt to silty clay	
8.23	472	359	very stiff fine grained	
8.39	500	321	sandy silt to silty clay	
8.63	487	373	clayey silt to silty clay	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5014.CSV

Date Started: Friday, August 25, 1995

Time Started: 4:55 PM

N rth Coordinate (feet): 170363.54

East Coordinate (feet): 381694.89

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
8.86	432	301	sandy silt to silty clay	
9.11	470	383	sandy silt to silty clay	
9.33	481	380	silty sand to sandy silt	
9.57	479	361	silty sand to sandy silt	
9.74	508	1106	sand to silty sand	
9.90	500	740	sandy silt to silty clay	
10.15	493	1322	clayey silt to silty clay	
10.39	466	771	sandy silt to silty clay	
10.87	464	1014	silty sand to sandy silt	
10.99	498	981	clay	
11.13	476	734	clay	
11.25	506	544	clay	
11.44	476	338	silty sand to sandy silt	
11.54	468	376	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5101.CSV	North Coordinate (feet):	170040.55
Date Started:	Sunday, August 27, 1995	East Coordinate (feet):	381535.64
Time Started:	7:59 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	449	1137	sand to silty sand	
0.41	481	1154	sand	
0.67	451	1062	silty sand to sandy silt	
0.92	441	886	silty sand to sandy silt	
1.43	462	738	sand	
1.63	441	615	silty sand to sandy silt	
1.88	430	610	sand to clayey sand	
2.14	432	547	silty sand to sandy silt	
2.40	447	549	sand to silty sand	
2.65	436	586	silty sand to sandy silt	
2.90	436	530	silty sand to sandy silt	
3.40	436	535	silty sand to sandy silt	
3.65	436	494	sand to silty sand	
3.90	432	442	sand	
4.40	432	499	sand to silty sand	
4.65	428	544	silty sand to sandy silt	
4.83	428	496	sandy silt to silty clay	
5.08	441	484	sandy silt to silty clay	
5.33	426	445	sandy silt to silty clay	
5.58	426	437	sand to silty sand	
5.83	445	486	clayey silt to silty clay	
6.08	438	476	clayey silt to silty clay	
6.34	436	370	silty sand to sandy silt	
6.59	424	532	silty sand to sandy silt	
6.84	449	520	sandy silt to silty clay	
7.34	447	499	silty sand to sandy silt	
7.59	441	494	silty sand to sandy silt	
7.84	434	472	sandy silt to silty clay	
8.05	449	472	sandy silt to silty clay	
8.17	445	465	silty sand to sandy silt	
8.42	428	401	silty sand to sandy silt	
8.66	432	465	silty sand to sandy silt	
8.93	436	403	silty sand to sandy silt	
9.18	445	532	sandy silt to silty clay	
9.43	443	489	silty sand to sandy silt	
9.68	430	545	silty sand to sandy silt	
9.95	428	467	sandy silt to silty clay	
10.20	428	520	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5101.CSV	North Coordinate (feet):	170040.55
Date Started:	Sunday, August 27, 1995	East Coordinate (feet):	381535.64
Time Started:	7:59 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.70	436	467	sandy silt to silty clay	
10.95	428	516	clayey silt to silty clay	
11.20	447	561	sandy silt to silty clay	
11.46	438	396	silty sand to sandy silt	
11.71	428	574	sandy silt to silty clay	
11.96	430	535	silty sand to sandy silt	
12.20	432	537	sandy silt to silty clay	
12.45	432	562	sandy silt to silty clay	
12.70	434	520	silty sand to sandy silt	
12.96	438	551	sandy silt to silty clay	
13.21	462	503	sandy silt to silty clay	
13.46	445	523	sandy silt to silty clay	
13.97	445	539	silty sand to sandy silt	
14.22	438	585	sandy silt to silty clay	
14.47	445	460	sandy silt to silty clay	
14.69	432	537	sandy silt to silty clay	
14.79	434	556	sandy silt to silty clay	
15.04	472	503	sandy silt to silty clay	
15.16	449	530	sandy silt to silty clay	
15.29	432	530	sandy silt to silty clay	
15.49	428	450	clayey silt to silty clay	
15.74	441	389	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5102.CSV

North Coordinate (feet): 170118.05

East Coordinate (feet): 381468.49

Date Started: Sunday, August 27, 1995

Elevation (feet): 0

Time Started: 8:42 AM

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	428	590	sandy silt to silty clay	
0.42	432	854	silty sand to sandy silt	
0.59	455	757	sand	
0.84	449	682	sand to silty sand	
1.09	443	590	silty sand to sandy silt	
1.34	426	664	sand to silty sand	
1.48	453	679	sand to silty sand	
1.73	445	630	sand to silty sand	
1.98	447	573	sand to silty sand	
2.23	434	551	sand to silty sand	
2.35	430	494	sand to silty sand	
2.60	434	473	silty sand to sandy silt	
2.72	436	461	silty sand to sandy silt	
2.98	432	427	silty sand to sandy silt	
3.23	424	430	sandy silt to silty clay	
3.47	426	398	silty sand to sandy silt	
3.99	430	240	silty sand to sandy silt	
4.24	436	515	silty sand to sandy silt	
4.48	700	123	sand to silty sand	
4.89	460	371	sand	
5.13	430	475	sandy silt to silty clay	
5.39	436	419	sandy silt to silty clay	
5.63	428	368	silty sand to sandy silt	
5.88	443	356	sandy silt to silty clay	
6.14	432	343	sandy silt to silty clay	
6.39	436	480	silty sand to sandy silt	
6.63	430	507	silty sand to sandy silt	
7.14	432	525	silty sand to sandy silt	
7.39	432	532	silty sand to sandy silt	
7.90	428	483	silty sand to sandy silt	
8.15	438	675	sand to silty sand	
8.39	447	628	silty sand to sandy silt	
8.51	447	639	sandy silt to silty clay	
8.76	428	700	silty sand to sandy silt	
9.01	449	639	sand to silty sand	
9.27	426	693	silty sand to sandy silt	
9.52	428	679	silty sand to sandy silt	
9.77	434	568	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5102.CSV	N rth Coordinate (feet):	170118.05
Date Started:	Sunday, August 27, 1995	East Coordinate (feet):	381468.49
Time Started:	8:42 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.01	462	569	sand to silty sand	
10.27	438	627	silty sand to sandy silt	
10.77	455	563	sandy silt to silty clay	
11.02	426	594	very stiff fine grained	
11.22	432	520	sandy silt to silty clay	
11.47	438	501	silty sand to sandy silt	
11.71	424	498	sandy silt to silty clay	
11.97	443	492	silty sand to sandy silt	
12.22	453	438	sandy silt to silty clay	
12.47	474	452	clayey silt to silty clay	
12.72	436	504	silty sand to sandy silt	
12.98	447	441	sandy silt to silty clay	
13.23	434	473	silty sand to sandy silt	
13.73	441	422	silty sand to sandy silt	
13.98	432	466	clayey silt to silty clay	
14.23	449	509	sandy silt to silty clay	
14.49	438	494	sandy silt to silty clay	
14.74	457	498	clayey silt to silty clay	
14.99	432	483	sandy silt to silty clay	
15.19	434	422	silty sand to sandy silt	
15.31	457	463	silty sand to sandy silt	
15.58	441	486	silty sand to sandy silt	
15.75	436	520	silty sand to sandy silt	
15.99	428	472	silty sand to sandy silt	
16.24	426	315	silty sand to sandy silt	
16.49	447	387	sand to silty sand	
16.67	438	546	silty sand to sandy silt	
16.92	430	562	silty sand to sandy silt	
17.17	428	577	sand to silty sand	
17.28	430	503	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5104.CSV

Date Started: Sunday, August 27, 1995

Time Started: 11:03 AM

North Coordinate (feet): 170081.57

East Coordinate (feet): 381372.44

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	485	804	silty sand to sandy silt	
0.41	445	643	gravely sand to sand	
0.66	449	701	sand to silty sand	
0.91	436	557	silty sand to sandy silt	
1.16	462	608	sand to silty sand	
1.41	476	854	sand	
1.67	445	565	sand to silty sand	
1.93	443	453	sand to silty sand	
2.17	436	438	sand to silty sand	
2.43	436	455	sand to silty sand	
2.67	434	421	silty sand to sandy silt	
2.83	430	381	sand to clayey sand	
3.08	436	389	silty sand to sandy silt	
3.49	434	427	sandy silt to silty clay	
3.74	457	425	sandy silt to silty clay	
3.98	447	430	silty sand to sandy silt	
4.11	445	506	silty sand to sandy silt	
4.36	430	433	sand to silty sand	
4.61	443	463	sand to silty sand	
4.86	434	460	sand	
5.11	447	437	sand	
5.36	438	438	sand to silty sand	
5.60	434	453	sand	
5.85	441	451	sand to silty sand	
6.09	432	467	sand to silty sand	
6.43	441	430	sand	
6.68	438	361	sand to silty sand	
6.80	447	447	sand to silty sand	
7.05	441	393	sand to silty sand	
7.29	432	420	sand to silty sand	
7.49	436	424	silty sand to sandy silt	
7.68	436	420	silty sand to sandy silt	
7.91	428	428	sandy silt to silty clay	
8.02	436	472	sandy silt to silty clay	
8.11	449	462	sandy silt to silty clay	
8.36	430	440	sand to silty sand	
8.60	430	397	sandy silt to silty clay	
8.85	434	460	very stiff fine grained	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5104.CSV

Date Started: Sunday, August 27, 1995

Time Started: 11:03 AM

North Coordinate (feet): 170081.57

East Coordinate (feet): 381372.44

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.10	428	420	silty sand to sandy silt	
9.35	430	384	sandy silt to silty clay	
9.53	447	429	sandy silt to silty clay	
9.96	436	436	silty sand to sandy silt	
10.21	441	453	silty sand to sandy silt	
10.45	451	428	silty sand to sandy silt	
10.69	443	401	silty sand to sandy silt	
10.80	462	463	silty sand to sandy silt	
10.89	428	496	silty sand to sandy silt	
11.01	438	385	silty sand to sandy silt	
11.10	434	432	silty sand to sandy silt	
11.22	436	428	silty sand to sandy silt	
11.42	457	425	silty sand to sandy silt	
11.63	453	507	sand to silty sand	
11.84	432	515	sand to silty sand	
11.93	430	488	silty sand to sandy silt	
12.06	432	457	silty sand to sandy silt	
12.22	434	420	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5105.CSV	North Coordinate (feet):	0
Date Started:	Sunday, August 27, 1995	East Coordinate (feet):	0
Time Started:	11:40 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	438	900	sand	
0.41	445	925	sand	
0.66	438	998	sand to silty sand	
0.86	466	752	silty sand to sandy silt	
1.11	430	824	silty sand to sandy silt	
1.37	474	983	sand to silty sand	
1.62	455	711	sand to silty sand	
1.87	460	624	sand to silty sand	
2.12	445	580	sand to silty sand	
2.62	426	605	silty sand to sandy silt	
2.73	434	564	silty sand to sandy silt	
2.84	451	605	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5201.CSV
 Date Started: Sunday, August 27, 1995
 Time Started: 1:05 PM
 North Coordinate (feet): 170035.22
 East C ordinate (feet): 381136.9
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	460	908	sand	
0.34	483	759	gravely sand to sand	
0.59	438	634	sand	
0.84	481	932	sand to silty sand	
1.03	487	1593	sand to silty sand	
1.28	502	2439	sand to silty sand	
1.52	493	4303	silty sand to sandy silt	
1.79	455	2456	silty sand to sandy silt	
2.04	449	620	sand to silty sand	
2.54	434	516	sand	
2.80	438	515	sand to silty sand	
3.05	443	451	silty sand to sandy silt	
3.57	449	459	sand to silty sand	
3.81	466	515	silty sand to sandy silt	
4.06	445	515	silty sand to sandy silt	
4.20	428	495	silty sand to sandy silt	
4.33	434	451	silty sand to sandy silt	
4.49	445	647	silty sand to sandy silt	
4.73	466	611	silty sand to sandy silt	
4.98	447	558	sand to silty sand	
5.24	438	467	silty sand to sandy silt	
5.49	449	562	silty sand to sandy silt	
5.73	436	543	sand to silty sand	
5.92	436	479	sand to silty sand	
6.17	447	488	sand to silty sand	
6.43	443	494	gravely sand to sand	
6.92	436	472	very stiff fine grained	
7.17	430	502	sand	
7.42	443	599	sand	
7.67	443	474	silty sand to sandy silt	
7.87	438	551	sand to silty sand	
8.12	470	540	sand to silty sand	
8.37	434	528	sand to silty sand	
8.61	432	511	silty sand to sandy silt	
8.86	430	519	sand to silty sand	
9.06	447	456	sand	
9.31	466	476	silty sand to sandy silt	
9.55	426	435	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5201.CSV
Date Started: Sunday, August 27, 1995
Time Started: 1:05 PM

North Coordinate (feet): 170035.22
East Coordinate (feet): 381136.9
Elevation (feet): 0
Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.79	430	454	sand to silty sand	
10.29	455	436	sand to silty sand	
10.54	447	436	sand to silty sand	
10.79	432	447	silty sand to sandy silt	
11.04	436	438	silty sand to sandy silt	
11.16	432	447	sand to silty sand	
11.41	441	486	sand to silty sand	
11.66	441	452	sand to silty sand	
11.92	432	443	silty sand to sandy silt	
12.17	436	503	sand to silty sand	
12.42	428	427	silty sand to sandy silt	
12.67	441	399	sand to silty sand	
12.94	432	431	sand to silty sand	
13.45	453	540	sand to silty sand	
13.69	445	415	silty sand to sandy silt	
13.94	428	414	silty sand to sandy silt	
14.18	428	435	sandy silt to silty clay	
14.30	451	447	silty sand to sandy silt	
14.40	432	416	silty sand to sandy silt	
14.65	428	355	silty sand to sandy silt	
14.90	443	377	sandy silt to silty clay	
15.15	451	367	sandy silt to silty clay	
15.40	432	367	silty sand to sandy silt	
15.57	449	458	silty sand to sandy silt	
15.69	445	452	sand to silty sand	
15.95	460	436	sand to silty sand	
16.20	434	418	sand to silty sand	
16.44	441	440	sand	
16.69	441	484	sand	
16.94	434	412	sand to silty sand	
17.19	424	343	silty sand to sandy silt	
17.44	436	341	silty sand to sandy silt	
17.69	470	407	sand	
18.05	449	514	sand	
18.30	432	471	silty sand to sandy silt	
18.55	434	436	sandy silt to silty clay	
18.79	441	435	sandy silt to silty clay	
19.05	432	470	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5201.CSV
Date Started: Sunday, August 27, 1995
Time Started: 1:05 PM

North Coordinate (feet): 170035.22
East Coordinate (feet): 381136.9
Elevation (feet): 0
Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.30	432	391	silty sand to sandy silt	
19.79	445	414	sandy silt to silty clay	
20.03	441	419	silty sand to sandy silt	
20.27	445	440	silty sand to sandy silt	
20.52	443	451	sandy silt to silty clay	
20.77	462	446	sand to silty sand	
20.99	451	389	sandy silt to silty clay	
21.17	447	361	sandy silt to silty clay	
21.41	434	350	clayey silt to silty clay	
21.50	432	350	sandy silt to silty clay	
21.64	453	369	sandy silt to silty clay	
21.87	436	361	silty sand to sandy silt	
22.12	434	427	clayey silt to silty clay	
22.37	441	377	clayey silt to silty clay	
22.62	438	401	sandy silt to silty clay	
23.13	449	401	clayey silt to silty clay	
23.38	443	385	sandy silt to silty clay	
23.63	441	419	gravely sand to sand	
23.88	428	415	sand	
24.32	424	398	clayey silt to silty clay	
24.43	445	474	clay	
24.59	436	389	clayey silt to silty clay	
24.74	432	401	clayey silt to silty clay	
24.99	445	398	clayey silt to silty clay	
25.15	434	418	sand to silty sand	
25.34	428	377	sandy silt to silty clay	
25.45	453	16081	sandy silt to silty clay	
25.70	447	4083	clayey silt to silty clay	
25.95	455	1224	sandy silt to silty clay	
26.19	432	411	clayey silt to silty clay	
26.44	436	482	sand to silty sand	
26.70	430	837	sand	
26.94	426	628	sand to silty sand	
27.08	438	923	sand to silty sand	
27.20	426	816	silty sand to sandy silt	
27.35	436	583	sand	
27.45	417	1219	sand	
27.61	432	532	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5201.CSV

North Coordinate (feet): 170035.22

East Coordinate (feet): 381136.9

Date Started: Sunday, August 27, 1995

Elevation (feet): 0

Time Started: 1:05 PM

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
27.84	462	3890	sand	
28.09	457	21559	sand to silty sand	
28.34	455	1530	sand to silty sand	
28.58	445	1045	sand to silty sand	
28.82	449	782	silty sand to sandy silt	
29.07	441	856	silty sand to sandy silt	
29.32	447	4906	sand	
29.83	460	2604	sand to silty sand	
30.33	436	1866	clay	
30.58	445	4672	sandy silt to silty clay	
30.83	447	47686	clay	
30.93	455	29096	clayey silt to silty clay	
31.43	445	74335	sandy silt to silty clay	
31.67	455	36850	sandy silt to silty clay	
31.92	447	10682	silty sand to sandy silt	
32.17	436	3028	sandy silt to silty clay	
32.42	466	638	silty sand to sandy silt	
32.67	438	3439	silty sand to sandy silt	
32.93	445	5179	sandy silt to silty clay	
33.42	430	1480	sandy silt to silty clay	
33.68	438	690	sandy silt to silty clay	
33.93	443	704	silty sand to sandy silt	
34.18	436	668	silty sand to sandy silt	
34.54	449	642	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5202.CSV	North Coordinate (feet):	170089.35
Date Started:	Sunday, August 27, 1995	East Coordinate (feet):	381135.42
Time Started:	1:50 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.13	453	1090	silty sand to sandy silt	
0.37	476	921	sand to silty sand	
0.63	462	864	sand to silty sand	
0.88	451	692	sand to silty sand	
1.13	462	669	sand to silty sand	
1.39	441	764	silty sand to sandy silt	
1.54	470	864	sand	
1.72	460	775	sand	
1.97	455	739	sand	
2.48	428	624	sand to silty sand	
2.73	457	524	silty sand to sandy silt	
2.97	447	410	sand to silty sand	
3.21	432	394	sand	
3.45	430	422	sand to silty sand	
3.95	441	486	sand	
4.20	449	475	sandy silt to silty clay	
4.44	432	427	silty sand to sandy silt	
4.69	449	415	sand to silty sand	
4.82	447	395	sand	
4.99	430	422	sand	
5.23	422	419	sand to silty sand	
5.41	438	452	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

North Coordinate (feet): 170090.09
 East Coordinate (feet): 381010.02
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272
 Push Id: TK5203.CSV
 Date Started: Sunday, August 27, 1995
 Time Started: 2.09 PM

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.18	460	545	silty sand to sandy silt	
0.29	468	693	silty sand to sandy silt	
0.53	468	751	silty sand to sandy silt	
0.78	468	710	silty sand to sandy silt	
1.03	462	742	silty sand to sandy silt	
1.29	474	745	sand to silty sand	
1.49	464	653	sand to silty sand	
1.74	445	721	sand	
1.99	449	711	sand	
2.14	445	602	sand	
2.39	441	536	gravely sand to sand	
2.89	428	504	silty sand to sandy silt	
3.14	430	519	sand to silty sand	
3.39	438	491	sand to silty sand	
3.65	428	449	silty sand to sandy silt	
3.91	436	476	silty sand to sandy silt	
4.16	443	507	silty sand to sandy silt	
4.24	447	474	silty sand to sandy silt	
4.49	441	510	sand to silty sand	
4.74	432	445	sand to silty sand	
4.99	430	448	very stiff fine grained	
5.23	424	473	silty sand to sandy silt	
5.49	441	507	silty sand to sandy silt	
5.74	428	467	sand to silty sand	
5.98	466	467	sand to silty sand	
6.24	441	446	silty sand to sandy silt	
6.49	445	428	silty sand to sandy silt	
6.74	424	406	silty sand to sandy silt	
7.23	445	492	sand to silty sand	
7.48	436	442	silty sand to sandy silt	
7.72	445	428	silty sand to sandy silt	
7.99	445	476	silty sand to sandy silt	
8.13	426	470	silty sand to sandy silt	
8.39	441	442	sand to silty sand	
8.64	449	431	sand	
8.90	432	442	sand to silty sand	
9.15	453	421	sand to silty sand	
9.65	443	423	silty sand to sandy silt	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5203.CSV

Date Started: Sunday, August 27, 1995

Time Started: 2:09 PM

North Coordinate (feet): 170090.09

East Coordinate (feet): 381010.02

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.91	436	485	sandy silt to silty clay	
10.16	441	470	sandy silt to silty clay	
10.66	445	480	silty sand to sandy silt	
10.92	445	488	sand to silty sand	
11.02	438	477	silty sand to sandy silt	
11.22	449	461	sandy silt to silty clay	
11.46	428	449	silty sand to sandy silt	
11.64	434	393	silty sand to sandy silt	
11.89	432	420	sandy silt to silty clay	
12.14	430	384	sandy silt to silty clay	
12.39	428	405	sandy silt to silty clay	
12.64	434	392	sandy silt to silty clay	
12.89	447	380	silty sand to sandy silt	
13.14	430	474	sand	
13.39	441	508	sand	
13.63	455	464	silty sand to sandy silt	
14.07	453	508	silty sand to sandy silt	
14.32	426	458	silty sand to sandy silt	
14.56	460	386	sandy silt to silty clay	
14.79	445	420	silty sand to sandy silt	
15.00	443	467	silty sand to sandy silt	
15.25	432	426	silty sand to sandy silt	
15.50	449	414	sand to silty sand	
15.75	432	426	sandy silt to silty clay	
15.97	441	491	sand to silty sand	
16.21	422	375	silty sand to sandy silt	
16.45	438	409	silty sand to sandy silt	
16.70	441	463	sand to silty sand	
17.18	443	502	silty sand to sandy silt	
17.43	432	443	sandy silt to silty clay	
17.67	432	443	silty sand to sandy silt	
17.91	445	451	silty sand to sandy silt	
18.15	445	483	sand to silty sand	
18.39	430	485	sand to silty sand	
18.64	445	473	sand to silty sand	
18.89	438	457	sand to silty sand	
19.14	430	495	sand to silty sand	
19.38	432	479	silty sand to sandy silt	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5203.CSV

Date Started: Sunday, August 27, 1995

Time Started: 2:09 PM

North Co rdinate (feet): 170090.09

East Coordinate (feet): 381010.02

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.63	441	464	sandy silt to silty clay	
19.87	434	470	sandy silt to silty clay	
20.12	434	505	sandy silt to silty clay	
20.57	422	492	silty sand to sandy silt	
20.80	432	452	silty sand to sandy silt	
21.06	451	457	very stiff fine grained	
21.31	453	434	sandy silt to silty clay	
21.47	453	415	sandy silt to silty clay	
21.97	449	463	sandy silt to silty clay	
22.21	443	445	sandy silt to silty clay	
22.46	432	445	clayey silt to silty clay	
22.71	434	463	silty sand to sandy silt	
22.91	443	424	clay	
23.16	434	436	clay	
23.40	449	436	clayey silt to silty clay	
23.90	443	417	silty sand to sandy silt	
24.15	432	381	sandy silt to silty clay	
24.30	430	381	sandy silt to silty clay	
24.55	436	392	clayey silt to silty clay	
24.80	432	414	sandy silt to silty clay	
24.96	443	372	silty sand to sandy silt	
25.13	464	428	sand	
25.24	460	1677	sand to silty sand	
25.42	447	2235	silty clay to clay	
25.67	455	19771	clay	
25.92	462	17918	silty clay to clay	
26.16	457	12128	sandy silt to silty clay	
26.41	460	12585	silty sand to sandy silt	
26.66	455	9465	silty sand to sandy silt	
26.88	462	8863	sand	
27.29	464	6351	gravely sand to sand	

SCAPS LIF and Geotechnical Data

(Tank Farm 5)

North C ordinate (feet): 169999.25
 East Coordinate (feet): 381044.53
 Elevation (feet): 0
 Push Id: TK5205.CSV
 Date Started: Tuesday, September 05, 1995
 Time Started: 4:17 PM
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	455	455	silty sand to sandy silt	
0.42	468	476	silty sand to sandy silt	
0.67	462	418	silty sand to sandy silt	
0.79	470	387	silty sand to sandy silt	
0.93	445	317	silty sand to sandy silt	
1.03	455	329	silty sand to sandy silt	
1.16	451	305	silty sand to sandy silt	
1.40	462	283	silty sand to sandy silt	
1.66	447	286	silty sand to sandy silt	
1.91	466	322	silty sand to sandy silt	
2.17	455	300	silty sand to sandy silt	
2.28	457	440	silty sand to sandy silt	
2.47	451	354	silty sand to sandy silt	
2.72	464	379	sand to silty sand	
2.98	464	321	gravely sand to sand	
3.23	447	274	gravely sand to sand	
3.49	472	340	very stiff fine grained	
3.74	451	310	very stiff fine grained	
3.99	460	300	silty sand to sandy silt	
4.25	443	270	silty sand to sandy silt	
4.75	438	290	sand to silty sand	
4.89	468	314	sand to silty sand	
5.14	462	303	sand to silty sand	
5.65	449	302	sand to silty sand	
5.91	449	337	sand to silty sand	
6.15	504	699	sandy silt to silty clay	
6.66	438	388	sand	
6.91	466	270	sand to silty sand	
7.16	447	272	sand to silty sand	
7.38	468	264	sand to silty sand	
7.63	468	279	sand to silty sand	
7.87	449	343	sand to silty sand	
8.11	453	285	sand to silty sand	
8.37	464	283	silty sand to sandy silt	
8.61	451	314	very stiff fine grained	
8.86	453	323	sand to silty sand	
9.05	445	331	sand to silty sand	
9.29	441	279	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5205.CSV	North Coordinate (feet):	169999.25
Date Started:	Tuesday, September 05, 1995	East Coordinate (feet):	381044.53
Time Started:	4:17 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.67	447	294	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5206.CSV
 Date Started: Tuesday, September 05, 1995
 Time Started: 4:55 PM
 North Coordinate (feet): 170010.37
 East Coordinate (feet): 381014.48
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	481	780	sand	
0.41	483	735	sand	
0.66	453	603	sand	
0.91	445	462	sand to silty sand	
1.03	474	401	sand	
1.15	455	369	sand	
1.33	438	328	sand to silty sand	
1.58	436	296	silty sand to sandy silt	
1.83	443	299	silty sand to sandy silt	
2.08	430	288	sand to silty sand	
2.33	445	320	sandy silt to silty clay	
2.58	449	305	sandy silt to silty clay	
2.77	468	328	sand to silty sand	
3.01	438	313	sand	
3.26	451	305	sand	
3.76	445	338	sand	
4.00	430	300	sand to silty sand	
4.26	445	303	sand	
4.51	449	341	silty sand to sandy silt	
4.66	453	300	silty sand to sandy silt	
4.91	424	300	silty sand to sandy silt	
5.02	432	295	silty sand to sandy silt	
5.53	447	333	silty sand to sandy silt	
5.78	451	294	sand to silty sand	
6.03	443	269	sand	
6.28	447	311	sand to silty sand	
6.53	462	310	sandy silt to silty clay	
6.71	438	286	silty sand to sandy silt	
7.08	438	313	sand to silty sand	
7.32	441	308	sand to silty sand	
7.57	436	329	sand	
7.82	447	255	silty sand to sandy silt	
8.02	447	289	sand to silty sand	
8.52	466	281	silty sand to sandy silt	
8.77	457	275	sand to silty sand	
9.03	447	305	sand	
9.27	441	299	silty sand to sandy silt	
9.53	455	292	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5206.CSV	North Coordinate (feet):	170010.37
Date Started:	Tuesday, September 05, 1995	East Coordinate (feet):	381014.48
Time Started:	4.55 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.04	445	288	sand to silty sand	
10.54	438	293	silty sand to sandy silt	
10.80	449	300	silty sand to sandy silt	
11.29	457	279	sand to silty sand	
11.55	455	276	silty sand to sandy silt	
11.79	438	282	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5207.CSV
 Date Started: Tuesday, September 05, 1995
 Time Started: 5:27 PM
 North Coordinate (feet): 170135.7
 East Coordinate (feet): 380986.28
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	472	2916	sand to silty sand	
0.29	462	865	sand	
0.54	466	853	sand	
0.77	481	648	sand to silty sand	
1.26	460	496	sand to silty sand	
1.48	468	441	sand	
1.73	457	362	sand to silty sand	
1.97	460	410	sand to silty sand	
2.22	466	457	sand	
2.39	445	345	sand to silty sand	
2.64	474	301	sand to silty sand	
2.90	453	289	sand to silty sand	
3.15	445	331	sand to silty sand	
3.41	468	284	silty sand to sandy silt	
3.65	451	269	silty sand to sandy silt	
3.90	436	254	sand to silty sand	
4.16	453	243	silty sand to sandy silt	
4.41	447	283	silty sand to sandy silt	
4.66	455	235	sandy silt to silty clay	
4.77	462	283	silty sand to sandy silt	
5.02	479	298	silty sand to sandy silt	
5.26	455	281	sand to silty sand	
5.50	445	296	sand	
5.75	438	263	sand to silty sand	
5.99	474	489	silty sand to sandy silt	
6.24	462	698	silty sand to sandy silt	
6.49	483	689	silty sand to sandy silt	
6.73	472	724	sand to silty sand	
7.02	472	531	sand to silty sand	
7.26	462	393	sand	
7.38	445	367	sand	
7.51	460	324	sand	
7.75	455	321	sand	
7.99	441	280	silty sand to sandy silt	
8.08	441	278	sandy silt to silty clay	
8.23	468	264	silty sand to sandy silt	
8.33	468	287	sand to silty sand	
8.42	438	266	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5207.CSV	North Coordinate (feet):	170135.7
Date Started:	Tuesday, September 05, 1995	East Coordinate (feet):	380986.28
Time Started:	5:27 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
8.55	445	248	sand to silty sand	
8.67	438	221	sand to silty sand	
8.81	449	241	sand to silty sand	
8.98	460	244	sand to silty sand	
9.07	441	218	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: NPFF01.CSV

Date Started: Tuesday, August 22, 1995

Time Started: 1:44 PM

North Coordinate (feet): 169944.2

East Coordinate (feet): 381802.84

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.09	457	1246	sand to silty sand	
0.34	445	1265	sand	
0.59	443	1371	sand	
0.84	445	1076	silty sand to sandy silt	
1.01	436	1081	silty sand to sandy silt	
1.20	438	1055	sand to clayey sand	
1.45	441	1056	sand to silty sand	
1.69	430	886	sand	
1.88	447	893	sand	
2.04	438	916	sand	
2.29	432	897	sand to clayey sand	
2.54	432	582	sand to clayey sand	
2.79	436	586	sand to silty sand	
2.97	434	610	sand	
3.14	438	640	sand	
3.39	436	599	sand	
3.63	438	617	sand to clayey sand	
3.88	434	600	sand to clayey sand	
4.12	428	693	sand to silty sand	
4.36	430	645	silty sand to sandy silt	
4.60	436	673	sand to silty sand	
4.85	436	857	sand	
5.10	434	750	sand to silty sand	
5.36	438	750	sand	
5.62	436	520	sand	
5.87	445	598	sand to silty sand	
6.12	436	547	silty sand to sandy silt	
6.38	443	641	sand to silty sand	
6.64	432	614	sand	
6.88	428	679	sand to silty sand	
7.39	432	681	silty sand to sandy silt	
7.64	434	660	sandy silt to silty clay	
7.90	445	667	sand	
8.07	438	642	sand to silty sand	
8.32	436	719	sand to silty sand	
8.57	445	670	silty sand to sandy silt	
8.83	436	709	silty sand to sandy silt	
9.08	436	692	silty sand to sandy silt	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: NPFF01.CSV
 Date Started: Tuesday, August 22, 1995
 Time Started: 1:44 PM
 North Coordinate (feet): 169944.2
 East Coordinate (feet): 381802.84
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.33	443	704	silty sand to sandy silt	
9.58	430	745	sand to silty sand	
9.84	436	696	silty sand to sandy silt	
10.09	436	740	silty sand to sandy silt	
10.35	432	616	sand to silty sand	
10.61	438	685	sand to silty sand	
10.86	434	738	silty sand to sandy silt	
11.12	436	762	sandy silt to silty clay	
11.37	432	691	silty sand to sandy silt	
11.62	432	661	silty sand to sandy silt	
11.88	436	651	silty sand to sandy silt	
12.14	430	882	silty sand to sandy silt	
12.39	438	859	sandy silt to silty clay	
12.64	434	847	silty sand to sandy silt	
12.91	447	752	sand to silty sand	
13.17	434	827	silty sand to sandy silt	
13.42	434	888	sand to silty sand	
13.93	432	805	sandy silt to silty clay	
14.19	441	880	silty sand to sandy silt	
14.45	438	885	sand to silty sand	
14.71	445	784	silty sand to sandy silt	
14.96	438	673	sandy silt to silty clay	
15.21	434	648	silty sand to sandy silt	
15.46	445	653	sandy silt to silty clay	
15.72	438	668	clayey silt to silty clay	
15.97	441	642	sandy silt to silty clay	
16.22	436	645	clayey silt to silty clay	
16.48	428	887	sand	
16.75	432	796	silty sand to sandy silt	
17.26	428	801	sand to silty sand	
17.51	432	752	sandy silt to silty clay	
17.76	447	649	sandy silt to silty clay	
17.98	441	689	silty sand to sandy silt	
18.23	441	656	sandy silt to silty clay	
18.49	434	741	silty clay to clay	
18.73	455	740	silty sand to sandy silt	
18.93	436	700	sandy silt to silty clay	
19.43	443	682	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	NPFF01.CSV	North Coordinate (feet):	169944.2
Date Started:	Tuesday, August 22, 1995	East Coordinate (feet):	381802.84
Time Started:	1:44 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.55	436	711	silty sand to sandy silt	
19.66	430	843	sand	
19.75	438	589	sand	
19.89	432	707	sandy silt to silty clay	
20.01	434	639	silty clay to clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	NPFF02.CSV	North Coordinate (feet):	169968.5
Date Started:	Tuesday, August 22, 1995	East Coordinate (feet):	381838.2
Time Started:	2:31 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	447	1184	sand to silty sand	
0.42	445	1002	sand	
0.67	432	1091	sand	
0.84	441	707	silty sand to sandy silt	
1.09	434	818	silty sand to sandy silt	
1.34	438	802	sand	
1.59	455	969	sand	
1.84	436	743	sand	
2.09	432	696	sand to silty sand	
2.34	432	710	very stiff fine grained	
2.59	434	710	very stiff fine grained	
2.76	432	678	sandy silt to silty clay	
3.26	436	697	sand to silty sand	
3.50	441	675	silty sand to sandy silt	
3.75	436	703	silty sand to sandy silt	
4.00	443	670	silty sand to sandy silt	
4.22	436	583	silty sand to sandy silt	
4.47	434	547	silty sand to sandy silt	
4.72	436	577	silty sand to sandy silt	
4.97	441	502	very stiff fine grained	
5.22	436	586	very stiff fine grained	
5.47	430	568	sandy silt to silty clay	
5.73	441	571	sandy silt to silty clay	
5.99	434	572	silty sand to sandy silt	
6.24	434	500	silty sand to sandy silt	
6.74	432	522	silty clay to clay	
6.99	436	538	clay	
7.24	438	651	silty sand to sandy silt	
7.39	430	560	silty sand to sandy silt	
7.53	430	619	silty sand to sandy silt	
7.78	436	609	sandy silt to silty clay	
8.02	434	620	sand to silty sand	
8.18	438	667	sandy silt to silty clay	
8.42	432	648	silty sand to sandy silt	
8.67	432	616	sandy silt to silty clay	
8.93	430	531	sand to silty sand	
9.18	432	615	sand	
9.44	436	644	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: NPFF02.CSV
 Date Started: Tuesday, August 22, 1995
 Time Started: 2:31 PM
 North Coordinate (feet): 169968.5
 East Coordinate (feet): 381838.2
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.94	434	693	sandy silt to silty clay	
10.19	445	606	sandy silt to silty clay	
10.45	430	654	very stiff fine grained	
10.70	432	584	clayey silt to silty clay	
10.81	441	664	sand to silty sand	
11.06	436	666	silty sand to sandy silt	
11.30	441	558	sand to silty sand	
11.56	438	638	silty sand to sandy silt	
11.81	432	644	silty sand to sandy silt	
12.07	434	625	silty sand to sandy silt	
12.32	432	625	sandy silt to silty clay	
12.57	443	627	clayey silt to silty clay	
12.82	436	640	sandy silt to silty clay	
13.32	432	698	sand	
13.58	432	580	silty sand to sandy silt	
13.83	430	612	sandy silt to silty clay	
14.08	432	627	sandy silt to silty clay	
14.33	441	607	sand to silty sand	
14.84	436	630	silty sand to sandy silt	
15.09	436	623	silty sand to sandy silt	
15.34	438	583	very stiff fine grained	
15.58	438	462	clay	
15.84	434	582	clay	
16.09	445	720	clay	
16.60	436	537	clay	
16.85	434	542	clayey silt to silty clay	
17.10	436	540	silty clay to clay	
17.36	443	563	silty sand to sandy silt	
17.61	436	638	gravely sand to sand	
17.88	441	686	sand to silty sand	
18.13	432	635	sandy silt to silty clay	
18.39	441	663	very stiff fine grained	
18.64	436	564	very stiff fine grained	
18.89	436	559	silty sand to sandy silt	
19.14	436	603	clayey silt to silty clay	
19.39	432	589	sandy silt to silty clay	
19.91	441	780	sandy silt to silty clay	
20.16	443	759	sandy silt to silty clay	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: NPFF02.CSV
 Date Started: Tuesday, August 22, 1995
 Time Started: 2:31 PM
 North Coordinate (feet): 169968.5
 East Coordinate (feet): 381838.2
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
20.41	432	619	silty sand to sandy silt	
20.65	436	678	sandy silt to silty clay	
20.90	449	550	clay	
21.15	434	593	clay	
21.40	443	575	clay	
21.66	445	757	silty clay to clay	
21.85	443	777	clay	
22.10	443	742	silty sand to sandy silt	
22.35	441	806	gravely sand to sand	
22.60	443	810	sand	
23.11	434	773	silty sand to sandy silt	
23.36	443	573	silty sand to sandy silt	
23.61	430	577	sandy silt to silty clay	
23.87	436	564	sandy silt to silty clay	
24.02	460	1244	sandy silt to silty clay	
24.27	417	4798	clayey silt to silty clay	
24.53	428	749	clay	
24.78	434	556	silty clay to clay	
25.03	432	522	clay	
25.28	438	565	clay	
25.54	430	600	clayey silt to silty clay	
25.79	441	547	clay	
26.04	432	624	clay	
26.55	436	567	clay	
26.81	441	559	clayey silt to silty clay	
27.07	449	567	clayey silt to silty clay	
27.26	438	599	silty clay to clay	
27.76	443	647	clay	
28.01	436	560	clay	
28.26	432	588	silty clay to clay	
28.52	438	548	clayey silt to silty clay	
28.77	443	540	clay	
29.03	430	570	clayey silt to silty clay	
29.28	436	548	sandy silt to silty clay	
29.79	438	547	sand to silty sand	
30.04	441	551	clay	
30.29	434	557	clay	
30.55	447	565	clayey silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	NPFF02.CSV	North Coordinate (feet):	169968.5
Date Started:	Tuesday, August 22, 1995	East C ordinate (feet):	381838.2
Time Started:	2:31 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
30.80	447	553	clayey silt to silty clay	
31.06	445	553	clay	
31.32	436	589	clay	
31.57	432	581	silty clay to clay	
31.82	443	614	silty clay to clay	
32.07	447	684	silty clay to clay	
32.32	436	622	clay	
32.58	436	585	clayey silt to silty clay	
32.97	438	581	clay	
33.36	436	578	clay	
33.61	438	538	clay	
33.81	432	567	clay	
33.98	443	543	clay	
34.23	432	538	clayey silt to silty clay	
34.48	438	564	sandy silt to silty clay	
34.60	438	512	clay	
34.75	447	510	clay	
34.99	455	1089	sand to silty sand	
35.24	436	702	clay	
35.36	432	534	very stiff fine grained	
35.61	438	596	sandy silt to silty clay	
35.86	449	675	sand	
35.95	434	643	sand to silty sand	
36.22	443	823	sand to silty sand	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5403.CSV

North Coordinate (feet): 169934.26

East Coordinate (feet): 381812.79

Date Started:

Elevation (feet): 0

Time Started:

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	445	649	silty clay to clay	
0.40	441	788	sand	
0.66	441	684	sand	
0.87	430	696	sand to silty sand	
1.11	441	711	sand to silty sand	
1.35	434	698	sand to silty sand	
1.59	445	772	sand	
1.84	449	762	sand	
2.10	436	602	sand to silty sand	
2.35	438	535	sand to clayey sand	
2.60	430	557	sand to clayey sand	
2.84	432	607	silty sand to sandy silt	
3.09	438	556	silty sand to sandy silt	
3.33	447	544	silty sand to sandy silt	
3.85	430	526	silty sand to sandy silt	
4.10	430	534	sand to silty sand	
4.35	432	516	sand to silty sand	
4.60	428	498	sand to silty sand	
4.84	436	628	sand	
5.09	436	705	silty sand to sandy silt	
5.34	436	615	silty sand to sandy silt	
5.59	434	597	silty sand to sandy silt	
5.76	443	658	sandy silt to silty clay	
6.01	432	598	sandy silt to silty clay	
6.15	430	598	silty sand to sandy silt	
6.40	432	579	silty sand to sandy silt	
6.65	434	572	silty sand to sandy silt	
7.15	432	563	silty sand to sandy silt	
7.40	432	599	silty sand to sandy silt	
7.65	436	575	silty sand to sandy silt	
7.91	436	529	sand to silty sand	
8.40	438	574	sand	
8.65	438	595	sand to silty sand	
8.90	434	633	sand to silty sand	
9.15	436	619	silty sand to sandy silt	
9.40	430	666	silty sand to sandy silt	
9.65	434	631	silty sand to sandy silt	
9.89	432	655	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

North Coordinate (feet): 169934.26
 East Coordinate (feet): 381812.79
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272
 Push Id: TK5403.CSV
 Date Started:
 Time Started:

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.39	443	609	sand	
10.64	428	586	silty sand to sandy silt	
10.90	430	569	sandy silt to silty clay	
11.16	436	575	silty sand to sandy silt	
11.41	436	590	silty sand to sandy silt	
11.91	441	648	silty sand to sandy silt	
12.16	443	541	silty sand to sandy silt	
12.42	428	634	sand to silty sand	
12.67	443	565	clayey silt to silty clay	
12.92	438	619	sand to silty sand	
13.18	451	575	silty sand to sandy silt	
13.69	438	557	sand	
13.94	441	596	clayey silt to silty clay	
14.19	432	705	sandy silt to silty clay	
14.45	430	667	sandy silt to silty clay	
14.70	441	630	clay	
14.96	443	719	clayey silt to silty clay	
15.47	438	676	sandy silt to silty clay	
15.72	430	646	sandy silt to silty clay	
15.97	436	740	sandy silt to silty clay	
16.23	441	616	clay	
16.47	432	557	clay	
16.98	441	586	clay	
17.23	441	622	silty sand to sandy silt	
17.48	441	692	sand to silty sand	
17.67	438	593	sand to silty sand	
17.93	436	544	sand	
18.19	445	540	sand to silty sand	
18.45	438	539	silty sand to sandy silt	
18.70	436	615	clay	
18.95	432	512	clay	
19.20	430	546	clayey silt to silty clay	
19.45	438	670	clay	
19.70	432	669	clay	
20.21	451	696	clay	
20.47	438	607	clay	
20.72	457	813	clay	
20.99	438	709	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5403.CSV
 Date Started:
 Time Started:

North Coordinate (feet): 169934.26
 East Coordinate (feet): 381812.79
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
21.24	447	806	silty clay to clay	
21.74	432	665	silty sand to sandy silt	
22.00	436	734	silty sand to sandy silt	
22.25	436	748	clay	
22.51	445	611	clayey silt to silty clay	
22.76	434	652	clay	
23.01	441	683	clay	
23.51	436	644	clayey silt to silty clay	
23.77	430	588	silty clay to clay	
24.02	443	582	clayey silt to silty clay	
24.27	438	547	clay	
24.53	436	686	sand to silty sand	
25.02	436	526	clayey silt to silty clay	
25.27	443	543	clay	
25.52	436	555	silty clay to clay	
25.78	441	513	silty sand to sandy silt	
26.04	434	541	clayey silt to silty clay	
26.29	436	545	clay	
26.39	436	547	silty clay to clay	
26.86	441	537	clay	
27.12	434	625	silty clay to clay	
27.37	432	564	clayey silt to silty clay	
27.62	455	536	sandy silt to silty clay	
28.12	443	530	silty clay to clay	
28.39	447	557	sandy silt to silty clay	
28.58	447	578	clayey silt to silty clay	
28.80	445	581	clay	
28.98	436	545	clay	
29.09	432	555	clay	
29.35	445	546	clay	
29.60	436	618	clay	
30.12	441	542	clayey silt to silty clay	
30.38	445	559	sand to silty sand	
30.58	430	590	clayey silt to silty clay	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5404.CSV
 Date Started:
 Time Started:
 North Coordinate (feet): 169934.54
 East C ordinate (feet): 381801.46
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.42	436	1057	organic material	
0.67	445	1069	organic material	
0.92	445	1245	organic material	
1.16	464	1040	organic material	
1.66	449	1370	organic material	
1.92	445	1045	organic material	
2.17	445	1123	organic material	
2.43	432	1058	organic material	
2.64	436	1084	organic material	
2.89	436	1019	organic material	
3.14	436	1005	organic material	
3.39	430	904	organic material	
3.63	434	1033	organic material	
3.78	438	1079	clay	
3.97	445	1048	organic material	
4.22	438	1043	organic material	
4.36	445	943	organic material	
4.61	432	1044	organic material	
4.86	434	1007	sand	
5.35	434	1051	sand to silty sand	
5.60	455	1106	sand to silty sand	
5.76	443	1127	silty sand to sandy silt	
6.00	441	984	silty sand to sandy silt	
6.25	443	1031	sandy silt to silty clay	
6.65	432	1031	silty sand to sandy silt	
6.90	443	1069	sand to silty sand	
7.06	443	1055	sand to silty sand	
7.31	434	1016	silty sand to sandy silt	
7.55	438	971	silty sand to sandy silt	
7.79	441	1175	gravely sand to sand	
7.98	451	958	sand	
8.23	457	968	sand to silty sand	
8.48	441	954	sand to silty sand	
8.72	436	953	sand to silty sand	
8.97	441	997	sand to silty sand	
9.22	447	1007	silty sand to sandy silt	
9.46	441	1014	very stiff fine grained	
9.71	436	953	very stiff fine grained	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5404.CSV

Date Started:

Time Started:

North Coordinate (feet): 169934.54

East Coordinate (feet): 381801.46

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.96	436	973	clayey silt to silty clay	
10.46	451	934	sand	
10.71	441	986	sand to silty sand	
10.95	436	986	silty sand to sandy silt	
11.20	436	1021	sand to silty sand	
11.45	436	1011	silty sand to sandy silt	
11.56	445	927	silty sand to sandy silt	
11.80	453	965	silty sand to sandy silt	
12.05	441	914	sandy silt to silty clay	
12.30	438	969	sandy silt to silty clay	
12.55	445	845	silty sand to sandy silt	
12.79	432	948	silty sand to sandy silt	
13.05	438	967	sandy silt to silty clay	
13.29	438	1183	silty clay to clay	
13.54	443	957	clay	
14.03	434	977	clayey silt to silty clay	
14.28	441	958	sandy silt to silty clay	
14.53	443	1012	silty clay to clay	
14.78	443	1000	clay	
14.90	449	1012	clay	
15.15	438	1090	clay	
15.39	445	1110	sandy silt to silty clay	
15.64	443	1069	sand to silty sand	
15.89	441	1064	clay	
16.14	445	939	clay	
16.39	441	909	silty sand to sandy silt	
16.64	438	997	sandy silt to silty clay	
16.89	438	976	clayey silt to silty clay	
17.39	436	1001	clayey silt to silty clay	
17.64	438	1018	silty clay to clay	
17.89	449	1024	clayey silt to silty clay	
18.13	460	1075	silty clay to clay	
18.38	447	1103	clayey silt to silty clay	
18.57	436	966	clay	
18.71	443	944	sand to silty sand	
18.96	445	970	sand	
19.21	443	1020	sand	
19.37	438	869	clayey silt to silty clay	

Summary data based on field data that was collected using SCAPS

SCAPS LIF and Geotechnical Data

(Tank Farm 5)

Push Id:	TK5404.CSV	North Coordinate (feet):	169934.54
Date Started:		East Coordinate (feet):	381801.46
Time Started:		Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
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SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5405.CSV
 Date Started: Wednesday, August 23, 1995
 Time Started: 10:23 AM
 North Coordinate (feet): 169969.33
 East Coordinate (feet): 381918.6
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	432	1518	sand to silty sand	
0.42	455	1715	sand to silty sand	
0.68	453	1308	sand	
0.92	451	1301	sand	
1.18	443	1264	sand to silty sand	
1.42	453	1177	sand to silty sand	
1.67	441	1147	silty sand to sandy silt	
1.92	453	1130	sand to silty sand	
2.17	453	1089	sand to silty sand	
2.43	449	1110	silty sand to sandy silt	
2.67	449	1288	silty sand to sandy silt	
2.93	462	1308	sand to silty sand	
3.18	451	995	sand to silty sand	
3.43	449	929	silty sand to sandy silt	
3.68	451	978	silty sand to sandy silt	
3.84	449	931	silty sand to sandy silt	
4.08	445	908	silty sand to sandy silt	
4.34	441	897	silty sand to sandy silt	
4.59	438	917	silty sand to sandy silt	
4.73	436	974	silty sand to sandy silt	
4.98	443	1000	silty sand to sandy silt	
5.23	441	897	silty sand to sandy silt	
5.48	445	820	silty sand to sandy silt	
5.73	441	901	silty sand to sandy silt	
5.98	438	830	sand	
6.23	447	850	sandy silt to silty clay	
6.48	436	881	sandy silt to silty clay	
6.73	445	890	sand to silty sand	
6.98	462	890	gravely sand to sand	
7.23	445	863	sand to silty sand	
7.48	457	827	sand to silty sand	
7.73	441	885	sandy silt to silty clay	
7.98	464	876	silty sand to sandy silt	
8.22	436	885	sand to silty sand	
8.47	457	851	sand to silty sand	
8.73	447	889	sand to silty sand	
8.98	441	925	silty sand to sandy silt	
9.22	445	937	silty sand to sandy silt	

Summary data based on field data that was collected using SCAPS

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5405.CSV
 Date Started: Wednesday, August 23, 1995
 Time Started: 10:23 AM
 North Coordinate (feet): 169969.33
 East Coordinate (feet): 381918.6
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.47	443	924	silty sand to sandy silt	
9.72	438	803	silty sand to sandy silt	
9.98	443	892	silty sand to sandy silt	
10.22	438	881	sand	
10.47	445	815	gravely sand to sand	
10.72	441	869	sand	
10.97	441	857	sand to silty sand	
11.48	441	855	sandy silt to silty clay	
11.72	462	882	silty sand to sandy silt	
11.98	434	888	silty sand to sandy silt	
12.23	443	931	sandy silt to silty clay	
12.48	455	945	clayey silt to silty clay	
12.72	438	848	silty sand to sandy silt	
12.97	447	891	sandy silt to silty clay	
13.22	457	918	silty sand to sandy silt	
13.72	441	1124	clay	
13.97	453	795	sandy silt to silty clay	
14.22	430	948	sand to silty sand	
14.46	449	817	clayey silt to silty clay	
14.95	445	842	silty sand to sandy silt	
15.20	455	953	silty sand to sandy silt	
15.45	451	958	silty sand to sandy silt	
15.69	455	976	silty sand to sandy silt	
15.93	434	904	silty sand to sandy silt	
16.19	462	916	silty sand to sandy silt	
16.44	455	901	sandy silt to silty clay	
16.93	445	951	sandy silt to silty clay	
17.18	443	888	clayey silt to silty clay	
17.43	447	1039	sandy silt to silty clay	
17.68	436	929	clay	
17.85	449	937	clay	
18.34	447	878	clayey silt to silty clay	
18.59	441	1104	clayey silt to silty clay	
18.84	460	1088	clay	
19.08	447	1202	clay	
19.33	449	1439	clayey silt to silty clay	
19.59	443	1268	sandy silt to silty clay	
19.84	443	948	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5405.CSV	North Coordinate (feet):	169969.33
Date Started:	Wednesday, August 23, 1995	East Coordinate (feet):	381918.6
Time Started:	10:23 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
20.35	432	932	clay	
20.60	441	955	clayey silt to silty clay	
20.85	453	932	clay	
21.10	453	1097	clay	
21.33	457	1056	clayey silt to silty clay	
21.48	443	1012	clayey silt to silty clay	
21.66	455	1057	clayey silt to silty clay	
21.75	447	958	silty sand to sandy silt	
21.99	460	1007	sandy silt to silty clay	
22.24	447	918	sandy silt to silty clay	
22.48	443	1019	sandy silt to silty clay	
22.73	457	976	clay	
22.98	449	1005	sandy silt to silty clay	
23.23	443	902	silty sand to sandy silt	
23.48	445	978	sandy silt to silty clay	
23.74	457	1005	clayey silt to silty clay	
24.24	464	1054	clayey silt to silty clay	
24.50	449	1050	clay	
24.74	455	1040	silty sand to sandy silt	
24.85	447	1016	sandy silt to silty clay	
25.09	460	1036	clay	
25.33	438	1032	clay	
25.58	443	1046	clay	
25.82	447	983	sandy silt to silty clay	
26.07	462	1022	sand	
26.32	443	1056	silty sand to sandy silt	
26.57	449	938	silty sand to sandy silt	
26.81	453	971	silty sand to sandy silt	
27.31	453	931	very stiff fine grained	
27.57	447	901	sandy silt to silty clay	
27.82	447	1187	sand to silty sand	
28.06	447	1046	sandy silt to silty clay	
28.31	455	968	sandy silt to silty clay	
28.57	470	958	sandy silt to silty clay	
28.80	466	1087	clay	
29.05	468	1147	sandy silt to silty clay	
29.30	449	874	silty sand to sandy silt	
29.55	449	878	clay	

Summary data based on field data that was collected using SCAPS

SCAPS LIF and G ot chnical Data (Tank Farm 5)

North C rdinate (feet): 169969.33
 Push Id: TK5405.CSV East Coordinate (feet): 381918.6
 Date Started: Wednesday, August 23, 1995 Elevation (feet): 0
 Time Started: 10:23 AM Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
29.80	436	835	clay	
30.06	447	812	silty sand to sandy silt	
30.55	466	1133	clay	
30.80	453	1022	clay	
31.06	468	981	sandy silt to silty clay	
31.31	457	935	clayey silt to silty clay	
31.77	434	793	clay	
32.01	447	854	clay	
32.26	455	908	clay	
32.51	449	861	sandy silt to silty clay	
32.76	460	1011	clay	
33.01	460	930	clay	
33.26	468	876	sandy silt to silty clay	
33.51	457	932	silty clay to clay	
34.01	460	829	sandy silt to silty clay	
34.25	453	902	silty clay to clay	
34.42	443	890	clay	
34.59	449	1005	clay	
34.71	447	1032	sensitive fine grained	
34.91	466	985	sensitive fine grained	
35.16	464	967	clayey silt to silty clay	
35.41	445	926	sandy silt to silty clay	
35.66	453	831	silty sand to sandy silt	
35.92	470	823	clayey silt to silty clay	
36.13	445	814	clayey silt to silty clay	
36.31	445	923	clayey silt to silty clay	
36.56	460	3236	sand	
36.80	445	965	sand	
37.05	447	1079	sand	
37.30	466	1450	sandy silt to silty clay	
37.56	441	874	sand	
37.80	453	911	sandy silt to silty clay	
38.05	447	859	sand to silty sand	
38.30	462	3818	silty sand to sandy silt	
38.52	451	1101	sand to silty sand	
38.71	441	1478	silty sand to sandy silt	
38.84	447	760	sand	
39.07	451	1409	organic material	

SCAPS LIF and Geotchnical Data (Tank Farm 5)

Push Id:	TK5405.CSV	North Coordinate (feet):	169969.33
Date Started:	Wednesday, August 23, 1995	East Coordinate (feet):	381918.6
Time Started:	10.23 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
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SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5406.CSV

North Coordinate (feet): 169905.55

East Coordinate (feet): 381938.21

Date Started: Wednesday, August 23, 1995

Elevation (feet): 0

Time Started: 12:08 PM

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	445	755	silty sand to sandy silt	
0.42	466	767	silty sand to sandy silt	
0.68	455	944	sand to silty sand	
0.93	453	784	sand to silty sand	
1.19	464	1050	silty sand to sandy silt	
1.45	464	1119	silty sand to sandy silt	
1.70	468	1004	silty sand to sandy silt	
1.95	470	973	silty sand to sandy silt	
2.20	460	1501	silty clay to clay	
2.46	468	1226	silty clay to clay	
2.71	466	932	clayey silt to silty clay	
2.97	466	1334	clay	
3.22	474	2495	silty sand to sandy silt	
3.48	462	1468	silty sand to sandy silt	
3.98	451	816	silty sand to sandy silt	
4.23	464	847	sand to silty sand	
4.48	470	705	sand	
4.72	460	672	sand	
4.97	447	684	sand	
5.22	462	730	sand to silty sand	
5.47	462	708	sand to silty sand	
5.72	455	686	sand to silty sand	
5.97	462	641	sand	
6.22	451	743	sand	
6.38	457	695	silty sand to sandy silt	
6.63	455	674	silty sand to sandy silt	
6.88	432	695	sand to silty sand	
7.13	453	676	sand to silty sand	
7.38	451	697	sandy silt to silty clay	
7.52	464	612	sandy silt to silty clay	
7.77	462	641	silty sand to sandy silt	
8.02	464	699	silty sand to sandy silt	
8.27	460	636	sand to silty sand	
8.52	464	753	very stiff fine grained	
8.73	460	621	very stiff fine grained	
8.83	449	627	very stiff fine grained	
8.95	451	644	silty sand to sandy silt	
9.16	455	671	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5406.CSV
 Date Started: Wednesday, August 23, 1995
 Time Started: 12:08 PM
 North Coordinate (feet): 169905.55
 East Coordinate (feet): 381938.21
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.40	457	601	sandy silt to silty clay	
9.65	460	630	sand to silty sand	
9.90	466	699	very stiff fine grained	
10.14	455	668	very stiff fine grained	
10.64	455	609	sandy silt to silty clay	
10.84	445	612	gravely sand to sand	
11.09	455	939	sand to silty sand	
11.34	466	1005	silty sand to sandy silt	
11.51	462	711	very stiff fine grained	
11.75	462	694	sandy silt to silty clay	
11.91	466	661	silty sand to sandy silt	
12.16	457	701	sand to silty sand	
12.41	449	636	silty sand to sandy silt	
12.62	447	698	sandy silt to silty clay	
12.87	453	699	silty sand to sandy silt	
13.12	447	721	very stiff fine grained	
13.36	466	722	silty sand to sandy silt	
13.80	464	799	sand to silty sand	
14.05	453	789	sand to silty sand	
14.29	449	570	sandy silt to silty clay	
14.54	462	709	clayey silt to silty clay	
14.71	464	718	clayey silt to silty clay	
14.95	466	683	silty sand to sandy silt	
15.20	455	668	clay	
15.43	460	699	clayey silt to silty clay	
15.61	462	700	clay	
15.85	451	680	sandy silt to silty clay	
16.10	449	653	sand	
16.36	455	664	clayey silt to silty clay	
16.60	438	709	clay	
17.10	462	614	clayey silt to silty clay	
17.35	445	610	clayey silt to silty clay	
17.59	466	681	sand to silty sand	
17.84	464	672	silty sand to sandy silt	
17.99	447	1180	sand to silty sand	
18.23	453	887	clay	
18.49	441	770	clay	
18.73	460	770	clay	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

North C ordinate (feet): 169905.55
 Push Id: TK5406.CSV East Coordinate (feet): 381938.21
 Date Started: Wednesday, August 23, 1995 Elevation (feet): 0
 Time Started: 12:08 PM Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
18.99	453	792	clayey silt to silty clay	
19.24	474	830	silty sand to sandy silt	
19.49	472	914	sandy silt to silty clay	
19.74	462	722	clayey silt to silty clay	
19.98	462	689	silty clay to clay	
20.48	462	753	sandy silt to silty clay	
20.74	472	758	clay	
20.98	449	769	clayey silt to silty clay	
21.24	455	725	clayey silt to silty clay	
21.35	462	746	clayey silt to silty clay	
21.59	464	778	clay	
22.09	438	808	clay	
22.25	462	780	clay	
22.49	455	777	silty clay to clay	
22.74	451	805	silty sand to sandy silt	
22.99	443	755	silty clay to clay	
23.24	462	801	silty sand to sandy silt	
23.49	457	567	silty clay to clay	
23.73	455	809	sandy silt to silty clay	
23.98	479	1076	clayey silt to silty clay	
24.22	462	782	clayey silt to silty clay	
24.47	455	808	silty clay to clay	
24.73	443	847	clay	
24.88	472	865	silty clay to clay	
25.12	451	770	clay	
25.37	449	885	sandy silt to silty clay	
25.63	472	905	silty clay to clay	
25.87	447	790	clay	
26.12	464	789	silty clay to clay	
26.62	449	950	sandy silt to silty clay	
27.12	470	1008	silty clay to clay	
27.37	451	1102	silty clay to clay	
27.61	462	1065	clayey silt to silty clay	
27.87	462	1160	sandy silt to silty clay	
28.07	472	1142	sandy silt to silty clay	
28.26	470	1040	silty clay to clay	
28.50	462	1003	silty clay to clay	
28.74	451	1054	clayey silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5406.CSV	North Coordinate (feet):	169905.55
Date Started:	Wednesday, August 23, 1995	East Coordinate (feet):	381938.21
Time Started:	12.08 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
28.99	455	962	silty clay to clay	
29.24	460	1127	silty sand to sandy silt	
29.49	457	883	sandy silt to silty clay	
29.74	457	838	clayey silt to silty clay	
29.99	447	845	clayey silt to silty clay	
30.24	447	830	clayey silt to silty clay	
30.49	453	891	sandy silt to silty clay	
30.74	479	861	clayey silt to silty clay	
30.99	462	965	clay	
31.47	466	1266	clay	
31.72	462	1082	sensitive fine grained	
31.96	474	988	clayey silt to silty clay	
32.21	464	1168	clayey silt to silty clay	
32.46	468	1174	silty clay to clay	
32.71	472	1018	silty clay to clay	
32.96	460	1134	sensitive fine grained	
33.21	443	1497	sandy silt to silty clay	
33.46	453	1347	sandy silt to silty clay	
33.96	457	1012	clay	
34.21	455	1106	silty clay to clay	
34.39	466	921	clayey silt to silty clay	
34.51	466	835	clayey silt to silty clay	
34.62	460	815	sandy silt to silty clay	
34.84	466	768	sandy silt to silty clay	
35.03	460	794	sandy silt to silty clay	
35.22	455	717	clay	
35.43	464	751	clayey silt to silty clay	
35.66	443	752	clay	
35.91	449	718	sandy silt to silty clay	
36.07	460	753	sandy silt to silty clay	
36.32	447	742	silty clay to clay	
36.57	460	681	sand	
36.82	447	13670	sand	
37.29	462	809	sand to silty sand	
37.53	447	986	sand	
37.77	466	773	sand	
38.01	449	695	sandy silt to silty clay	
38.17	455	753	silty clay to clay	

Summary data based on field data that was collected using SCAPS

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5406.CSV	North Coordinate (feet):	169905.55
Date Started:	Wednesday, August 23, 1995	East Coordinate (feet):	381938.21
Time Started:	12:08 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
38.33	445	744	silty sand to sandy silt	
38.51	455	3329	silty sand to sandy silt	
38.76	443	1043	sand	
39.01	453	854	silty sand to sandy silt	
39.17	462	813	silty sand to sandy silt	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5407.CSV
 Date Started: Wednesday, August 23, 1995
 Time Started: 1:51 PM
 North Coordinate (feet): 169861.37
 East Coordinate (feet): 381912.24
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	481	1207	sandy silt to silty clay	
0.41	479	1250	sand to silty sand	
0.66	474	1214	sand	
0.91	462	1077	sand	
1.16	464	953	sand to silty sand	
1.41	462	915	sand to silty sand	
1.56	462	927	sand	
1.80	451	961	sandy silt to silty clay	
2.05	472	817	silty sand to sandy silt	
2.51	460	1071	silty sand to sandy silt	
2.76	470	1294	sand to silty sand	
3.00	476	1377	silty sand to sandy silt	
3.16	485	1391	silty sand to sandy silt	
3.41	489	1442	sandy silt to silty clay	
3.66	487	1571	sand to silty sand	
4.16	457	713	sand	
4.41	457	664	silty sand to sandy silt	
4.59	447	641	sand to silty sand	
4.83	445	675	sandy silt to silty clay	
5.07	457	691	very stiff fine grained	
5.32	453	682	sandy silt to silty clay	
5.82	455	710	silty sand to sandy silt	
6.07	447	557	silty sand to sandy silt	
6.17	451	687	sand to silty sand	
6.42	451	678	silty sand to sandy silt	
6.68	457	697	silty sand to sandy silt	
6.92	457	679	silty sand to sandy silt	
7.41	449	678	silty sand to sandy silt	
7.66	464	570	sand to silty sand	
7.92	449	611	sand	
8.13	449	601	silty sand to sandy silt	
8.38	464	605	silty sand to sandy silt	
8.62	447	667	silty sand to sandy silt	
8.87	462	638	sand to silty sand	
9.12	460	644	sand to silty sand	
9.37	464	677	silty sand to sandy silt	
9.61	462	642	sandy silt to silty clay	
9.86	449	652	very stiff fine grained	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5407.CSV	North Coordinate (feet):	169861.37
Date Started:	Wednesday, August 23, 1995	East Coordinate (feet):	381912.24
Time Started:	1.51 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.11	455	699	silty sand to sandy silt	
10.60	455	659	sandy silt to silty clay	
10.86	447	631	sandy silt to silty clay	
11.11	464	679	sandy silt to silty clay	
11.36	455	635	sandy silt to silty clay	
11.46	447	751	sandy silt to silty clay	
11.70	455	678	sandy silt to silty clay	
11.95	466	699	sandy silt to silty clay	
12.20	460	696	silty sand to sandy silt	
12.71	453	735	silty sand to sandy silt	
12.95	472	722	sandy silt to silty clay	
13.21	468	626	sandy silt to silty clay	
13.46	462	662	sandy silt to silty clay	
13.97	517	718	sandy silt to silty clay	
14.22	447	652	sandy silt to silty clay	
14.46	483	701	sandy silt to silty clay	
14.71	464	699	clayey silt to silty clay	
14.96	462	673	sandy silt to silty clay	
15.21	462	657	sandy silt to silty clay	
15.47	472	725	clayey silt to silty clay	
15.72	453	690	sandy silt to silty clay	
16.07	455	677	sandy silt to silty clay	
16.31	472	666	clayey silt to silty clay	
16.56	460	813	clayey silt to silty clay	
16.81	485	885	silty clay to clay	
17.06	470	945	clayey silt to silty clay	
17.30	481	859	clay	
17.55	466	722	silty clay to clay	
17.80	457	791	sand	
18.03	472	725	clay	
18.27	474	849	clay	
18.44	485	930	clayey silt to silty clay	
18.61	466	863	sandy silt to silty clay	
18.86	457	968	clay	
19.12	462	848	sandy silt to silty clay	
19.62	455	6610	sand	
19.82	453	851	clay	
20.07	449	714	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5407.CSV
 Date Started: Wednesday, August 23, 1995
 Time Started: 1.51 PM
 North Coordinate (feet): 169861.37
 East Coordinate (feet): 381912.24
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
20.32	464	690	clay	
20.57	470	630	gravely sand to sand	
20.82	453	711	very stiff fine grained	
21.07	470	689	very stiff fine grained	
21.32	447	708	clayey silt to silty clay	
21.57	449	732	silty clay to clay	
21.81	470	632	clayey silt to silty clay	
22.07	466	756	clay	
22.31	468	729	clay	
22.56	451	660	clayey silt to silty clay	
22.81	468	697	clayey silt to silty clay	
23.05	430	706	silty clay to clay	
23.81	462	676	silty clay to clay	
24.06	460	694	clay	
24.32	457	662	clayey silt to silty clay	
24.81	462	748	silty sand to sandy silt	
25.06	449	715	silty sand to sandy silt	
25.32	460	692	clay	
25.57	481	724	clay	
25.82	472	674	clayey silt to silty clay	
26.07	460	690	clayey silt to silty clay	
26.29	470	656	clayey silt to silty clay	
26.79	468	628	sandy silt to silty clay	
27.04	453	653	sandy silt to silty clay	
27.29	472	704	silty sand to sandy silt	
27.54	466	678	silty sand to sandy silt	
27.79	457	636	clayey silt to silty clay	
28.04	449	672	clay	
28.28	462	705	sandy silt to silty clay	
28.53	472	706	silty sand to sandy silt	
28.79	460	617	sandy silt to silty clay	
29.04	457	650	clay	
29.29	468	578	clayey silt to silty clay	
29.54	460	560	silty sand to sandy silt	
29.79	447	599	sand to silty sand	
30.04	472	517	sand to silty sand	
30.29	464	605	silty sand to sandy silt	
30.55	462	699	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5407.CSV
 Date Started: Wednesday, August 23, 1995
 Time Started: 1:51 PM
 North Coordinate (feet): 169861.37
 East Coordinate (feet): 381912.24
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
30.79	455	707	sand to silty sand	
31.05	464	724	sandy silt to silty clay	
31.20	455	784	silty sand to sandy silt	
31.45	451	701	sand to silty sand	
31.70	483	787	clayey silt to silty clay	
31.94	466	756	clay	
32.20	436	623	sand to silty sand	
32.45	453	583	sand	
32.70	455	584	sand to silty sand	
33.08	466	548	clayey silt to silty clay	
33.25	472	488	sand to silty sand	
33.74	466	632	clayey silt to silty clay	
34.00	462	591	sand to silty sand	
34.11	457	598	sand to silty sand	
34.28	464	601	silty sand to sandy silt	
34.40	472	628	sand to silty sand	
34.60	466	1942	sandy silt to silty clay	
34.85	457	574	sand	
35.01	464	606	silty sand to sandy silt	
35.12	455	1112	sand to silty sand	
35.25	462	627	clayey silt to silty clay	
35.51	464	640	clay	
35.68	462	738	sand	
35.86	460	2035	sand to silty sand	
36.10	449	911	sand to silty sand	
36.30	455	658	sand to silty sand	
36.45	449	761	silty sand to sandy silt	
36.79	464	2439	sandy silt to silty clay	
36.95	460	701	silty sand to sandy silt	
37.10	460	676	silty sand to sandy silt	
37.24	457	739	sand	
37.35	445	843	sand to silty sand	
37.48	462	588	clayey silt to silty clay	
37.73	457	600	sand to silty sand	
37.89	455	693	sand	
38.14	455	704	sand	
38.39	462	606	sandy silt to silty clay	
38.65	445	577	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5407.CSV

North Coordinate (feet): 169861.37

Date Started: Wednesday, August 23, 1995

East Coordinate (feet): 381912.24

Time Started: 1:51 PM

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
38.90	455	594	sand	
39.15	474	549	gravely sand to sand	
39.41	466	548	sand to silty sand	
39.65	464	540	silty sand to sandy silt	
39.81	464	701	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5408.CSV
 Date Started: Wednesday, August 23, 1995
 Time Started: 2:57 PM
 North C ordinate (feet): 169854.46
 East Coordinate (feet): 381854.78
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.14	466	1458	silty sand to sandy silt	
0.39	474	1167	sand	
0.64	457	1039	sand to silty sand	
0.82	476	851	silty sand to sandy silt	
1.02	474	1072	silty sand to sandy silt	
1.21	470	987	silty sand to sandy silt	
1.46	468	936	sand to silty sand	
1.71	453	1111	sand	
2.20	468	1060	sandy silt to silty clay	
2.46	481	1240	silty sand to sandy silt	
2.71	483	1416	sandy silt to silty clay	
3.21	491	1375	sand	
3.46	464	814	sand	
3.71	455	695	silty sand to sandy silt	
3.95	466	703	silty sand to sandy silt	
4.21	464	694	silty sand to sandy silt	
4.45	457	649	sand to silty sand	
4.70	451	682	sand	
4.91	466	658	sandy silt to silty clay	
5.16	470	689	silty sand to sandy silt	
5.40	474	641	sand to silty sand	
5.65	457	650	silty sand to sandy silt	
5.90	466	667	sand to silty sand	
6.15	468	713	sand	
6.40	470	615	silty sand to sandy silt	
6.59	474	684	sand to silty sand	
6.84	476	615	sand	
7.08	466	714	sand	
7.33	474	667	sand	
7.58	462	645	sand to silty sand	
7.83	455	634	silty sand to sandy silt	
8.08	470	624	sandy silt to silty clay	
8.45	460	551	silty sand to sandy silt	
8.70	476	664	sand	
8.95	460	827	very stiff fine grained	
9.19	462	608	silty sand to sandy silt	
9.44	466	633	sand to silty sand	
9.68	462	631	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5408.CSV

Date Started: Wednesday, August 23, 1995

Time Started: 2:57 PM

North Coordinate (feet): 169854.46

East Coordinate (feet): 381854.78

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.83	464	654	sandy silt to silty clay	
10.08	468	620	sandy silt to silty clay	
10.33	460	639	sandy silt to silty clay	
10.57	457	635	sandy silt to silty clay	
10.82	470	648	sandy silt to silty clay	
11.08	457	636	sandy silt to silty clay	
11.32	470	722	sandy silt to silty clay	
11.78	462	684	clayey silt to silty clay	
12.03	470	701	clayey silt to silty clay	
12.28	462	709	sandy silt to silty clay	
12.53	462	687	sandy silt to silty clay	
12.78	472	670	silty sand to sandy silt	
13.00	451	691	silty sand to sandy silt	
13.24	460	676	sandy silt to silty clay	
13.49	466	697	silty sand to sandy silt	
13.74	457	652	silty sand to sandy silt	
13.99	464	662	sand to silty sand	
14.24	460	663	silty sand to sandy silt	
14.49	468	684	silty sand to sandy silt	
14.73	449	639	sandy silt to silty clay	
14.99	449	608	sandy silt to silty clay	
15.09	474	694	silty sand to sandy silt	
15.33	445	705	sandy silt to silty clay	
15.58	453	686	silty sand to sandy silt	
15.83	472	599	sandy silt to silty clay	
16.09	470	702	sandy silt to silty clay	
16.34	466	676	clay	
16.58	470	765	silty sand to sandy silt	
16.84	462	682	sandy silt to silty clay	
17.09	453	732	sandy silt to silty clay	
17.34	479	654	silty sand to sandy silt	
17.59	460	584	silty sand to sandy silt	
17.84	451	610	clayey silt to silty clay	
18.09	457	642	clay	
18.34	472	645	clay	
18.58	698	58	clay	
18.83	464	306	sandy silt to silty clay	
19.08	483	614	silty sand to sandy silt	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5408.CSV
 Date Started: Wednesday, August 23, 1995
 Time Started: 2:57 PM
 North Coordinate (feet): 169854.46
 East Coordinate (feet): 381854.78
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.33	474	635	clayey silt to silty clay	
19.58	470	617	sandy silt to silty clay	
19.82	470	629	clayey silt to silty clay	
20.08	472	655	sandy silt to silty clay	
20.33	470	662	clay	
20.83	460	653	clayey silt to silty clay	
21.09	466	657	clay	
21.34	472	677	clay	
21.59	457	591	sandy silt to silty clay	
21.96	491	674	sandy silt to silty clay	
22.21	464	991	clayey silt to silty clay	
22.46	481	852	sandy silt to silty clay	
22.71	455	691	clayey silt to silty clay	
22.96	493	645	clay	
23.20	460	624	clayey silt to silty clay	
23.70	479	648	sandy silt to silty clay	
24.22	485	628	clayey silt to silty clay	
24.46	466	692	silty clay to clay	
24.71	462	647	clayey silt to silty clay	
24.96	483	655	silty clay to clay	
25.22	460	656	clay	
25.46	468	645	silty clay to clay	
25.71	466	628	clayey silt to silty clay	
25.97	470	640	sandy silt to silty clay	
26.22	464	615	sandy silt to silty clay	
26.47	447	611	sand	
26.72	447	558	silty sand to sandy silt	
26.97	460	623	silty clay to clay	
27.48	460	642	clay	
27.73	464	650	clay	
27.99	483	687	clay	
28.09	466	699	sandy silt to silty clay	
28.17	462	642	sandy silt to silty clay	
28.30	464	589	silty sand to sandy silt	
28.42	462	609	clayey silt to silty clay	
28.52	457	637	sandy silt to silty clay	
28.62	457	645	silty sand to sandy silt	
28.79	462	589	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5408.CSV	North Coordinate (feet):	169854.46
Date Started:	Wednesday, August 23, 1995	East Coordinate (feet):	381854.78
Time Started:	2:57 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
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SCAPS LIF and Geotechnical Data (Tank Farm 5)

North Coordinate (feet): 169855.29
 East Coordinate (feet): 381839.31
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272
 Push Id: TK5409.CSV
 Date Started: Wednesday, August 23, 1995
 Time Started: 4:16 PM

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	468	1255	silty sand to sandy silt	
0.42	476	790	sand	
0.62	466	954	sand	
0.83	462	770	sand to silty sand	
1.02	462	973	silty sand to sandy silt	
1.27	449	624	sand to silty sand	
1.51	472	812	sand	
1.72	483	880	sand to silty sand	
1.97	479	1378	silty sand to sandy silt	
2.16	476	1093	sandy silt to silty clay	
2.41	489	1517	clayey silt to silty clay	
2.60	502	1146	sand to silty sand	
2.86	485	1157	gravely sand to sand	
3.11	460	771	sand	
3.36	460	610	sand to silty sand	
3.61	483	546	sand to silty sand	
3.86	455	593	sand to silty sand	
4.11	470	617	sand to silty sand	
4.36	462	594	sand to silty sand	
4.61	489	574	sand to silty sand	
4.83	464	543	sand to silty sand	
5.08	460	557	sandy silt to silty clay	
5.32	449	585	clayey silt to silty clay	
5.56	479	556	silty sand to sandy silt	
5.80	460	563	silty sand to sandy silt	
6.05	460	587	silty sand to sandy silt	
6.30	447	564	silty sand to sandy silt	
6.55	455	540	sand to silty sand	
6.79	474	493	sand	
7.28	472	569	sand to silty sand	
7.53	466	567	sand to silty sand	
7.78	460	581	silty sand to sandy silt	
8.03	457	695	sand	
8.16	453	572	silty sand to sandy silt	
8.33	462	652	sandy silt to silty clay	
8.43	466	592	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

North Coordinate (feet): 169874.62
 East Coordinate (feet): 381806.43
 Elevation (feet): 0
 Push Id: TK5410.CSV
 Date Started: Wednesday, August 23, 1995
 Time Started: 4:52 PM
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	457	1758	sandy silt to silty clay	
0.41	451	1314	sand	
0.66	451	1414	sand	
0.91	464	1363	sand to silty sand	
1.16	464	1264	silty sand to sandy silt	
1.41	464	1353	silty sand to sandy silt	
1.60	485	1316	gravely sand to sand	
1.85	472	1022	sand	
2.10	470	696	sand to clayey sand	
2.35	464	584	silty sand to sandy silt	
2.60	474	588	silty sand to sandy silt	
2.85	485	576	silty sand to sandy silt	
3.10	464	625	silty sand to sandy silt	
3.36	479	605	silty sand to sandy silt	
3.60	470	605	silty sand to sandy silt	
3.85	487	600	sand to silty sand	
4.11	466	588	sand to silty sand	
4.36	457	499	silty sand to sandy silt	
4.62	481	519	silty sand to sandy silt	
4.85	455	459	silty sand to sandy silt	
5.10	466	461	very stiff fine grained	
5.34	468	453	clayey silt to silty clay	
5.84	474	444	silty sand to sandy silt	
6.09	457	437	silty sand to sandy silt	
6.33	443	419	sandy silt to silty clay	
6.58	466	469	sandy silt to silty clay	
6.83	451	500	silty sand to sandy silt	
7.32	457	428	silty sand to sandy silt	
7.58	455	409	silty sand to sandy silt	
7.83	460	478	silty sand to sandy silt	
8.08	464	414	silty sand to sandy silt	
8.17	457	395	sandy silt to silty clay	
8.42	466	419	sandy silt to silty clay	
8.93	460	436	clayey silt to silty clay	
9.18	476	431	sandy silt to silty clay	
9.43	447	418	sandy silt to silty clay	
9.68	462	425	sandy silt to silty clay	
9.95	466	404	clayey silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5410.CSV
 Date Started: Wednesday, August 23, 1995
 Time Started: 4:52 PM
 North Coordinate (feet): 169874.62
 East Coordinate (feet): 381806.43
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
10.20	483	400	sandy silt to silty clay	
10.70	443	375	sandy silt to silty clay	
10.95	476	314	sandy silt to silty clay	
11.20	462	314	sandy silt to silty clay	
11.45	460	325	sandy silt to silty clay	
11.69	462	286	sandy silt to silty clay	
11.94	449	338	silty sand to sandy silt	
12.44	470	291	silty clay to clay	
12.68	472	299	sandy silt to silty clay	
12.93	445	295	silty sand to sandy silt	
13.09	466	377	silty sand to sandy silt	
13.26	430	295	sandy silt to silty clay	
13.41	491	333	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5701.CSV	North Coordinate (feet):	169742.11
Date Started:	Saturday, August 26, 1995	East Coordinate (feet):	382111.19
Time Started:	8:51 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	460	1649	silty sand to sandy silt	
0.41	474	1013	sand to silty sand	
0.60	493	1168	sand	
0.77	468	769	sand to silty sand	
0.93	428	831	sand to silty sand	
1.18	464	888	silty sand to sandy silt	
1.38	476	855	silty sand to sandy silt	
1.58	493	600	sandy silt to silty clay	
1.83	481	663	sand to silty sand	
1.99	449	625	clayey silt to silty clay	
2.21	445	548	silty sand to sandy silt	
2.42	485	748	sand	
2.65	472	695	sand	
2.90	457	589	gravely sand to sand	
3.16	451	337	sand	
3.41	479	326	sand to clayey sand	
3.91	493	535	very stiff fine grained	
4.16	466	4129	sand to silty sand	
4.40	457	4656	silty sand to sandy silt	
4.65	460	2680	sandy silt to silty clay	
4.89	466	3903	sand to silty sand	
5.14	447	1880	sandy silt to silty clay	
5.59	460	966	silty sand to sandy silt	
5.84	462	1011	silty sand to sandy silt	
6.09	462	973	clayey silt to silty clay	
6.34	457	1294	clayey silt to silty clay	
6.46	453	1225	sandy silt to silty clay	
6.55	468	1024	sandy silt to silty clay	
6.79	504	943	silty sand to sandy silt	
7.04	476	757	silty sand to sandy silt	
7.29	481	747	sand to silty sand	
7.53	489	563	silty sand to sandy silt	
7.62	457	553	silty sand to sandy silt	
7.88	476	488	silty sand to sandy silt	
8.12	485	607	sandy silt to silty clay	
8.37	487	662	sandy silt to silty clay	
8.62	476	597	gravely sand to sand	
8.87	485	686	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5701.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 8:51 AM
 North Coordinate (feet): 169742.11
 East Coordinate (feet): 382111.19
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.13	470	550	sandy silt to silty clay	
9.38	468	524	sandy silt to silty clay	
9.63	481	553	silty sand to sandy silt	
9.88	491	468	sand to silty sand	
10.01	464	420	sandy silt to silty clay	
10.39	468	436	silty sand to sandy silt	
10.64	491	351	silty clay to clay	
10.90	470	345	sandy silt to silty clay	
11.13	506	473	silty sand to sandy silt	
11.22	508	445	silty sand to sandy silt	
11.34	468	519	sandy silt to silty clay	
11.53	523	442	sandy silt to silty clay	
11.78	462	469	silty sand to sandy silt	
12.28	498	530	gravely sand to sand	
12.52	487	655	sand	
12.76	476	625	very stiff fine grained	
13.02	500	489	sand to silty sand	
13.27	474	525	sand	
13.52	493	374	sand	
13.77	472	712	clayey silt to silty clay	
14.03	498	432	clay	
14.28	491	381	clayey silt to silty clay	
14.53	485	383	silty sand to sandy silt	
14.78	472	538	silty sand to sandy silt	
15.27	489	398	clayey silt to silty clay	
15.53	481	365	clay	
15.78	476	383	sand to silty sand	
16.03	483	443	silty clay to clay	
16.27	491	509	clayey silt to silty clay	
16.53	470	432	clay	
17.02	502	373	clayey silt to silty clay	
17.27	506	377	clay	
17.52	462	473	clay	
17.77	476	349	clayey silt to silty clay	
18.02	481	486	clayey silt to silty clay	
18.27	504	429	sandy silt to silty clay	
18.52	481	478	sandy silt to silty clay	
18.76	472	430	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5701.CSV	North Coordinate (feet):	169742.11
Date Started:	Saturday, August 26, 1995	East Co rdinate (feet):	382111.19
Time Started:	8:51 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.01	485	396	clay	
19.26	493	460	clayey silt to silty clay	
19.52	502	286	sandy silt to silty clay	
19.76	525	311	sand to silty sand	
20.26	498	347	silty clay to clay	
20.51	491	460	silty clay to clay	
20.76	485	578	sandy silt to silty clay	
21.01	485	576	clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5702.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 9:34 AM
 North Coordinate (feet): 169746.9
 East Coordinate (feet): 382137.01
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.12	457	810	silty sand to sandy silt	
0.37	481	982	silty sand to sandy silt	
0.62	487	740	silty sand to sandy silt	
0.87	474	590	silty sand to sandy silt	
1.06	474	613	silty sand to sandy silt	
1.30	479	539	silty sand to sandy silt	
1.55	479	755	sand	
1.71	476	675	sand to silty sand	
1.95	487	502	sand to silty sand	
2.45	466	533	sand to silty sand	
2.95	472	487	sand to silty sand	
3.20	483	515	silty sand to sandy silt	
3.45	500	490	silty sand to sandy silt	
3.70	508	632	sand to silty sand	
3.94	485	593	sand	
4.36	498	484	sand to silty sand	
4.50	508	441	sand to silty sand	
4.75	476	577	sand to silty sand	
5.00	468	542	sand to silty sand	
5.25	460	596	silty sand to sandy silt	
5.49	487	520	silty sand to sandy silt	
5.74	489	655	sand to silty sand	
6.24	481	467	sand	
6.43	519	610	sandy silt to silty clay	
6.67	481	507	sandy silt to silty clay	
6.92	489	639	sand to silty sand	
7.03	506	719	sand to silty sand	
7.28	485	632	silty sand to sandy silt	
7.53	495	637	silty sand to sandy silt	
7.71	455	609	silty sand to sandy silt	
7.87	491	626	silty sand to sandy silt	
8.04	487	523	sandy silt to silty clay	
8.28	481	546	silty sand to sandy silt	
8.53	504	745	sand	
8.78	483	481	silty sand to sandy silt	
9.03	483	515	silty sand to sandy silt	
9.51	487	419	silty sand to sandy silt	
9.73	502	436	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5702.CSV	North Coordinate (feet):	169746.9
Date Started:	Saturday, August 26, 1995	East Coordinate (feet):	382137.01
Time Started:	9:34 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.97	481	588	sand	
10.21	468	486	sand to silty sand	
10.61	470	410	sand to silty sand	
10.85	462	438	clay	
11.10	517	478	clay	
11.35	466	632	silty clay to clay	
11.59	466	745	silty sand to sandy silt	
11.84	462	716	sand to silty sand	
12.09	462	335	clayey silt to silty clay	
12.29	517	352	silty clay to clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5703.CSV

North Coordinate (feet): 169697.26

East Coordinate (feet): 382199.88

Date Started: Saturday, August 26, 1995

Elevation (feet): 0

Time Started: 10:51 AM

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	468	1118	sand to silty sand	
0.41	483	1356	sand	
0.61	495	959	sand	
0.85	487	966	sand to silty sand	
1.09	457	708	sand to silty sand	
1.34	474	727	silty sand to sandy silt	
1.54	506	763	silty sand to sandy silt	
1.72	441	243	silty sand to sandy silt	
1.90	493	584	sand to silty sand	
2.15	495	596	silty sand to sandy silt	
2.40	487	898	sand to silty sand	
2.65	472	737	sand	
2.90	491	819	sand	
3.15	468	548	sand	
3.39	476	441	sand to silty sand	
3.64	483	318	sand to silty sand	
3.89	479	539	sand	
4.14	489	761	gravely sand to sand	
4.38	508	547	sand to silty sand	
4.63	500	846	very stiff fine grained	
4.85	510	654	very stiff fine grained	
5.28	487	635	sandy silt to silty clay	
5.52	470	514	sandy silt to silty clay	
5.77	493	476	silty sand to sandy silt	
6.01	481	641	silty sand to sandy silt	
6.26	487	679	sandy silt to silty clay	
6.51	500	911	silty sand to sandy silt	
6.76	476	615	sandy silt to silty clay	
7.25	506	438	sand to silty sand	
7.45	483	373	sand to silty sand	
7.70	476	379	sand to silty sand	
7.93	500	459	sand to silty sand	
8.18	470	523	sandy silt to silty clay	
8.42	508	345	clay	
8.66	483	392	clayey silt to silty clay	
8.91	498	401	silty sand to sandy silt	
9.16	495	532	clayey silt to silty clay	
9.41	474	403	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5703.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 10:51 AM
 North Coordinate (feet): 169697.26
 East Coordinate (feet): 382199.88
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.66	508	498	sand	
9.87	487	946	sandy silt to silty clay	
10.07	500	654	sandy silt to silty clay	
10.30	485	435	sand to silty sand	
10.55	489	400	sandy silt to silty clay	
10.79	479	367	clayey silt to silty clay	
11.05	483	368	sandy silt to silty clay	
11.29	504	337	silty sand to sandy silt	
11.46	487	447	silty sand to sandy silt	
11.71	470	423	sandy silt to silty clay	
11.95	529	388	sandy silt to silty clay	
12.20	493	297	sand	
12.32	468	450	sandy silt to silty clay	
12.47	468	420	very stiff fine grained	
12.72	491	337	sandy silt to silty clay	
12.97	481	426	silty sand to sandy silt	
13.22	519	371	sandy silt to silty clay	
13.47	476	371	silty sand to sandy silt	
13.92	500	461	silty sand to sandy silt	
14.17	510	374	clayey silt to silty clay	
14.41	495	391	clayey silt to silty clay	
14.66	487	617	sand	
14.78	487	514	silty sand to sandy silt	
15.03	476	428	clayey silt to silty clay	
15.29	487	423	sandy silt to silty clay	
15.54	483	365	sandy silt to silty clay	
15.79	445	370	sand to silty sand	
16.03	462	420	silty sand to sandy silt	
16.28	489	266	sandy silt to silty clay	
16.53	489	334	sandy silt to silty clay	
16.78	460	273	silty clay to clay	
17.04	540	370	silty sand to sandy silt	
17.29	512	269	silty sand to sandy silt	
17.54	491	315	sandy silt to silty clay	
17.79	479	429	clayey silt to silty clay	
18.04	538	339	sand to silty sand	
18.29	476	313	silty sand to sandy silt	
18.54	493	401	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5703.CSV

North Coordinate (feet): 169697.26

Date Started: Saturday, August 26, 1995

East Coordinate (feet): 382199.88

Time Started: 10:51 AM

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
18.78	487	410	clayey silt to silty clay	
19.03	491	428	silty sand to sandy silt	
19.27	523	334	silty sand to sandy silt	
19.52	498	312	sandy silt to silty clay	
19.77	483	412	sandy silt to silty clay	
20.02	529	455	sandy silt to silty clay	
20.39	502	370	sand to silty sand	
20.89	472	331	sandy silt to silty clay	
21.14	479	486	silty clay to clay	
21.30	468	392	silty sand to sandy silt	
21.52	491	376	silty sand to sandy silt	
21.77	485	398	sand to silty sand	
22.02	500	290	sandy silt to silty clay	
22.27	489	435	sandy silt to silty clay	
22.53	464	455	sandy silt to silty clay	
22.78	443	461	silty sand to sandy silt	
23.03	476	429	sandy silt to silty clay	
23.16	506	595	silty sand to sandy silt	
23.40	466	420	silty sand to sandy silt	
23.59	474	391	sandy silt to silty clay	
23.76	447	248	silty sand to sandy silt	
24.00	489	301	sand to silty sand	
24.25	474	325	sand to silty sand	
24.44	504	477	sandy silt to silty clay	
24.61	485	444	sandy silt to silty clay	
24.83	502	404	sand to silty sand	
25.08	470	321	silty sand to sandy silt	
25.32	519	343	silty sand to sandy silt	
25.58	504	413	silty sand to sandy silt	
25.83	489	419	sand to silty sand	
26.08	443	322	sand	
26.32	523	406	sand to silty sand	
26.57	495	403	silty sand to sandy silt	
27.06	476	324	silty sand to sandy silt	
27.32	460	276	clay	
27.49	457	270	sandy silt to silty clay	
27.69	502	252	silty sand to sandy silt	
27.92	493	324	sandy silt to silty clay	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5703.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 10:51 AM
 North Coordinate (feet): 169697 26
 East Co rdinate (feet): 382199 88
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
28.17	512	374	sandy silt to silty clay	
28.42	485	325	sandy silt to silty clay	
28.67	476	351	silty sand to sandy silt	
29.16	438	239	sandy silt to silty clay	
29.41	512	316	sandy silt to silty clay	
29.65	487	348	sandy silt to silty clay	
29.90	468	343	silty clay to clay	
30.27	481	420	sandy silt to silty clay	
30.44	464	337	sandy silt to silty clay	
30.66	538	325	sandy silt to silty clay	
30.90	485	333	silty sand to sandy silt	
31.15	460	257	sandy silt to silty clay	
31.40	451	267	clayey silt to silty clay	
31.63	504	319	sandy silt to silty clay	
31.80	698	168	silty clay to clay	
32.00	438	336	sandy silt to silty clay	
32.20	506	694	silty sand to sandy silt	
32.45	479	508	sand	
32.59	470	435	silty sand to sandy silt	
32.84	460	331	silty sand to sandy silt	
33.09	436	354	sandy silt to silty clay	
33.35	495	278	sandy silt to silty clay	
33.46	445	298	sandy silt to silty clay	
34.10	466	345	sand to silty sand	
34.28	500	348	very stiff fine grained	
34.39	700	273	sandy silt to silty clay	
34.62	460	331	sandy silt to silty clay	
34.83	460	362	sandy silt to silty clay	
34.96	700	263	clay	
35.22	489	386	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5704.CSV

Date Started: Saturday, August 26, 1995

Time Started: 11:44 AM

North Coordinate (feet): 169667.41

East Coordinate (feet): 382195.01

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	445	6137	sand to silty sand	
0.42	474	1435	sand	
0.67	460	1311	sand to silty sand	
0.92	495	1253	silty sand to sandy silt	
1.17	457	801	silty sand to sandy silt	
1.42	470	707	sand to silty sand	
1.67	474	873	sand to silty sand	
1.92	487	712	silty sand to sandy silt	
2.16	466	683	silty sand to sandy silt	
2.30	491	902	silty sand to sandy silt	
2.49	502	772	sand to silty sand	
2.74	476	895	silty sand to sandy silt	
2.90	489	980	silty sand to sandy silt	
3.13	504	1042	silty sand to sandy silt	
3.39	506	1045	sand to silty sand	
3.89	451	382	sand to silty sand	
4.14	464	502	silty sand to sandy silt	
4.38	500	323	sand	
4.63	491	440	sand	
4.80	474	365	sandy silt to silty clay	
5.01	451	483	very stiff fine grained	
5.22	491	462	very stiff fine grained	
5.47	493	602	very stiff fine grained	
5.72	470	404	silty sand to sandy silt	
5.96	462	479	silty sand to sandy silt	
6.22	457	407	sand to silty sand	
6.47	506	397	sand to silty sand	
6.71	472	483	sand	
7.15	474	546	sand to silty sand	
7.39	483	473	sand to silty sand	
7.64	498	564	sand to silty sand	
7.89	466	395	sand to silty sand	
8.08	472	366	sand to silty sand	
8.23	694	300	sandy silt to silty clay	
8.34	561	387	sandy silt to silty clay	
8.58	510	338	sandy silt to silty clay	
8.83	493	261	sand to silty sand	
9.02	538	381	sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5704.CSV	North Coordinate (feet):	169667.41
Date Started:	Saturday, August 26, 1995	East Coordinate (feet):	382195.01
Time Started:	11.44 AM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
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SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5705.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 2.02 PM
 North Coordinate (feet): 169630.26
 East Coordinate (feet): 382170.01
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.29	466	952	sand	
0.46	474	740	sand	
0.57	502	631	sand	
0.83	470	772	sand to silty sand	
1.08	468	554	sand to silty sand	
1.30	502	629	silty sand to sandy silt	
1.55	468	622	silty sand to sandy silt	
1.74	479	805	sand to silty sand	
1.92	495	768	sand to silty sand	
2.17	483	936	sand	
2.42	476	608	sand to silty sand	
2.67	485	351	sand to silty sand	
2.92	462	351	sand	
3.17	470	369	sand	
3.68	495	374	silty sand to sandy silt	
3.92	455	343	sand	
4.17	485	403	sand to clayey sand	
4.42	493	321	very stiff fine grained	
4.61	487	341	silty sand to sandy silt	
4.85	445	456	sand to silty sand	
5.10	502	530	silty sand to sandy silt	
5.35	455	353	silty sand to sandy silt	
5.60	460	351	sandy silt to silty clay	
5.84	462	366	sandy silt to silty clay	
6.09	481	341	silty sand to sandy silt	
6.34	474	374	silty sand to sandy silt	
6.59	479	360	sandy silt to silty clay	
7.06	487	393	silty sand to sandy silt	
7.31	483	360	silty sand to sandy silt	
7.55	472	356	sand to silty sand	
7.79	462	478	sand to silty sand	
7.88	462	524	sand to silty sand	
8.12	476	495	silty sand to sandy silt	
8.32	487	371	silty sand to sandy silt	
8.45	466	341	sandy silt to silty clay	
8.70	491	330	sandy silt to silty clay	
8.95	474	392	gravely sand to sand	
9.19	491	383	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5705.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 2.02 PM
 North C ordinate (feet): 169630.26
 East Coordinate (feet): 382170.01
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.45	474	369	clayey silt to silty clay	
9.70	481	334	sandy silt to silty clay	
9.95	470	376	sandy silt to silty clay	
10.20	464	350	silty sand to sandy silt	
10.45	460	259	sand	
10.70	481	237	sand	
10.95	491	377	silty sand to sandy silt	
11.16	483	289	clayey silt to silty clay	
11.24	457	296	sandy silt to silty clay	
11.49	500	344	sandy silt to silty clay	
11.74	498	407	silty sand to sandy silt	
11.99	479	358	sand to silty sand	
12.24	451	314	sandy silt to silty clay	
12.48	476	344	silty sand to sandy silt	
12.74	481	331	sand to silty sand	
12.99	481	376	silty sand to sandy silt	
13.24	487	334	silty sand to sandy silt	
13.73	508	298	sand to silty sand	
13.99	483	350	sandy silt to silty clay	
14.23	491	338	silty sand to sandy silt	
14.46	487	311	sandy silt to silty clay	
14.70	487	240	clayey silt to silty clay	
14.80	472	330	sandy silt to silty clay	
15.01	500	308	sandy silt to silty clay	
15.26	485	338	sandy silt to silty clay	
15.75	481	298	sand to silty sand	
15.99	483	321	silty sand to sandy silt	
16.25	479	296	sandy silt to silty clay	
16.49	462	279	sandy silt to silty clay	
17.01	466	409	sand	
17.12	468	403	sand to silty sand	
17.21	470	363	silty sand to sandy silt	
17.45	447	348	silty sand to sandy silt	
17.70	438	423	sandy silt to silty clay	
17.86	481	428	sandy silt to silty clay	
18.11	493	384	sandy silt to silty clay	
18.36	483	347	sandy silt to silty clay	
18.84	487	301	silty clay to clay	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5705.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 2.02 PM
 North Coordinate (feet): 169630.26
 East Coordinate (feet): 382170.01
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
19.10	479	335	silty sand to sandy silt	
19.35	483	320	sand	
19.59	472	268	silty sand to sandy silt	
19.83	512	270	silty sand to sandy silt	
20.08	481	258	clay	
20.33	483	328	silty sand to sandy silt	
20.57	462	358	sand to silty sand	
20.82	485	449	sandy silt to silty clay	
21.06	493	289	sandy silt to silty clay	
21.30	476	330	sandy silt to silty clay	
21.55	470	348	sandy silt to silty clay	
22.06	487	396	sandy silt to silty clay	
22.31	474	386	sandy silt to silty clay	
22.56	447	348	sandy silt to silty clay	
22.82	481	380	clayey silt to silty clay	
22.96	487	480	clayey silt to silty clay	
23.46	476	451	sand	
23.70	462	661	clayey silt to silty clay	
23.95	460	838	clay	
24.20	449	660	clay	
24.36	466	608	sandy silt to silty clay	
24.60	438	750	sand to silty sand	
24.85	457	498	silty sand to sandy silt	
25.11	443	377	silty sand to sandy silt	
25.35	479	366	silty clay to clay	
25.61	483	357	sandy silt to silty clay	
25.77	462	370	silty sand to sandy silt	
26.02	472	283	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5706.CSV

North C ordinate (feet): 169616.03

East Coordinate (feet): 382123.82

Date Started: Saturday, August 26, 1995

Elevation (feet): 0

Time Started: 2.34 PM

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.09	464	893	sand	
0.24	472	755	sand	
0.49	464	626	gravely sand to sand	
0.63	470	582	sand	
0.88	487	547	sand to silty sand	
1.13	479	578	silty sand to sandy silt	
1.38	476	671	sand to silty sand	
1.59	519	564	sand to silty sand	
1.84	493	551	sand to silty sand	
2.05	479	533	silty sand to sandy silt	
2.30	498	671	sand to silty sand	
2.55	487	472	sand	
2.70	487	529	sand	
2.95	487	317	sand to silty sand	
3.20	500	360	silty sand to sandy silt	
3.45	493	323	silty sand to sandy silt	
3.69	493	356	silty sand to sandy silt	
4.03	485	321	silty sand to sandy silt	
4.28	523	292	silty sand to sandy silt	
4.53	455	345	silty sand to sandy silt	
4.77	460	345	silty sand to sandy silt	
4.94	493	385	silty sand to sandy silt	
5.18	489	520	silty sand to sandy silt	
5.42	489	594	sand to silty sand	
5.59	481	456	sand to silty sand	
6.08	462	461	sand	
6.33	483	602	clayey silt to silty clay	
6.58	472	480	sandy silt to silty clay	
6.83	698	331	sandy silt to silty clay	
7.08	474	372	sandy silt to silty clay	
7.33	483	336	sand to silty sand	
7.58	476	313	sand to silty sand	
7.83	472	467	sand to silty sand	
8.09	500	289	sandy silt to silty clay	
8.24	498	351	sandy silt to silty clay	
8.48	493	303	sand to silty sand	
8.72	447	329	sand	
8.97	479	260	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5706.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 2:34 PM
 North Coordinate (feet): 169616.03
 East Coordinate (feet): 382123.82
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.22	487	337	sandy silt to silty clay	
9.46	491	307	sandy silt to silty clay	
9.71	498	297	sandy silt to silty clay	
9.96	495	250	silty sand to sandy silt	
10.21	483	305	silty sand to sandy silt	
10.80	508	268	silty sand to sandy silt	
11.04	479	297	silty sand to sandy silt	
11.30	483	289	sand to silty sand	
11.54	474	325	sand to silty sand	
11.73	474	349	sand to silty sand	
11.97	483	320	sand to silty sand	
12.10	449	373	sand to silty sand	
12.34	508	265	silty sand to sandy silt	
12.59	464	295	silty sand to sandy silt	
12.84	457	343	silty sand to sandy silt	
13.09	472	283	sandy silt to silty clay	
13.34	493	317	sandy silt to silty clay	
13.59	479	296	silty sand to sandy silt	
13.84	457	311	sandy silt to silty clay	
14.00	487	329	sandy silt to silty clay	
14.15	453	325	sandy silt to silty clay	
14.29	487	360	sand	
14.54	698	136	sand to silty sand	
14.79	468	270	sandy silt to silty clay	
14.90	485	277	silty sand to sandy silt	
15.15	485	315	clayey silt to silty clay	
15.39	493	268	sandy silt to silty clay	
15.64	445	240	silty sand to sandy silt	
15.90	470	216	sandy silt to silty clay	
16.15	466	265	sand to silty sand	
16.40	481	311	clay	
16.64	481	319	clay	
16.89	510	341	sandy silt to silty clay	
17.39	476	580	sandy silt to silty clay	
17.64	483	327	sandy silt to silty clay	
17.89	464	351	clayey silt to silty clay	
18.14	468	365	clayey silt to silty clay	
18.25	487	384	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5706.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 2.34 PM
 North Coordinate (feet): 169616.03
 East Coordinate (feet): 382123.82
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
18.43	489	395	silty sand to sandy silt	
18.68	481	343	sandy silt to silty clay	
19.17	487	333	clayey silt to silty clay	
19.42	504	343	silty clay to clay	
19.67	504	315	clay	
19.92	476	380	silty sand to sandy silt	
20.17	489	339	silty sand to sandy silt	
20.41	489	288	silty sand to sandy silt	
20.65	493	276	sand to silty sand	
20.79	510	246	silty sand to sandy silt	
20.95	481	364	silty sand to sandy silt	
21.20	466	287	sand to silty sand	
21.44	485	273	silty sand to sandy silt	
21.56	447	258	silty sand to sandy silt	
21.76	451	190	silty sand to sandy silt	
22.01	504	293	silty sand to sandy silt	
22.43	510	249	silty sand to sandy silt	
22.68	483	368	sandy silt to silty clay	
22.94	489	355	gravely sand to sand	
23.10	498	311	sand to silty sand	
23.35	504	237	silty sand to sandy silt	
23.60	517	315	sand to silty sand	
23.85	485	436	clayey silt to silty clay	
24.09	462	408	sandy silt to silty clay	
24.28	472	508	sandy silt to silty clay	
24.44	468	321	sand to silty sand	
24.69	476	249	silty sand to sandy silt	
24.83	479	242	sandy silt to silty clay	
24.98	485	232	clayey silt to silty clay	
25.23	434	244	sand to silty sand	
25.48	489	204	silty sand to sandy silt	
25.72	481	265	silty sand to sandy silt	
25.87	457	270	silty sand to sandy silt	
25.96	470	264	silty sand to sandy silt	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5707.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 4.00 PM
 North Coordinate (feet): 169637.9
 East Coordinate (feet): 382082.49
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.23	438	1171	sand	
0.39	438	1449	sand	
0.51	436	1239	sand	
0.75	436	1387	sand	
0.89	428	1353	sand to silty sand	
1.01	430	1283	sand	
1.25	434	1345	sand	
1.45	438	1380	sand to silty sand	
1.59	430	1360	silty sand to sandy silt	
1.84	436	1244	sand	
2.09	436	1271	sand	
2.29	432	1252	sand to silty sand	
2.54	430	1020	sand to clayey sand	
2.79	428	1098	sand to clayey sand	
3.05	436	1055	sand	
3.30	438	1258	sand	
3.55	430	1289	sand to clayey sand	
3.79	424	1098	silty sand to sandy silt	
4.29	430	1227	silty sand to sandy silt	
4.54	430	1210	silty sand to sandy silt	
4.78	434	1275	silty sand to sandy silt	
4.95	426	1098	silty sand to sandy silt	
5.19	428	1084	silty sand to sandy silt	
5.44	445	1297	sandy silt to silty clay	
5.69	428	1194	silty sand to sandy silt	
5.94	436	1171	silty sand to sandy silt	
6.43	428	1358	silty sand to sandy silt	
6.68	434	1140	silty sand to sandy silt	
6.93	432	1210	sand to silty sand	
7.18	432	1264	sand to silty sand	
7.43	430	1320	silty sand to sandy silt	
7.80	436	1372	silty sand to sandy silt	
8.05	432	1353	silty sand to sandy silt	
8.24	432	1335	silty sand to sandy silt	
8.49	438	1233	sand to silty sand	
8.74	432	1264	silty sand to sandy silt	
8.99	438	1200	sandy silt to silty clay	
9.23	434	1028	sandy silt to silty clay	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5707.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 4:00 PM
 North Coordinate (feet): 169637.9
 East Coordinate (feet): 382082.49
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.48	434	1204	silty sand to sandy silt	
9.73	434	1204	sand	
10.22	436	1152	sandy silt to silty clay	
10.72	443	1225	sandy silt to silty clay	
10.97	430	1210	sandy silt to silty clay	
11.22	430	1268	sandy silt to silty clay	
11.47	436	1206	sandy silt to silty clay	
11.56	441	1271	clayey silt to silty clay	
11.80	432	1262	sandy silt to silty clay	
12.05	447	1119	silty clay to clay	
12.30	436	1420	silty sand to sandy silt	
12.55	436	970	silty sand to sandy silt	
12.79	436	1175	silty sand to sandy silt	
12.99	430	1194	silty sand to sandy silt	
13.23	434	1107	silty sand to sandy silt	
13.48	438	1198	silty sand to sandy silt	
13.71	436	1134	silty sand to sandy silt	
13.96	436	1159	sand to silty sand	
14.45	436	1103	sand	
14.69	432	1148	sand	
14.87	438	1463	silty sand to sandy silt	
15.12	434	1237	very stiff fine grained	
15.36	441	1225	very stiff fine grained	
15.46	430	1210	very stiff fine grained	
15.70	434	1136	silty sand to sandy silt	
15.80	434	1185	sand to silty sand	
15.91	432	1144	sand to silty sand	
16.36	441	1047	clayey silt to silty clay	
16.61	434	1185	clayey silt to silty clay	
16.73	438	1154	sandy silt to silty clay	
16.97	434	1144	silty clay to clay	
17.18	432	1130	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5708.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 4:49 PM
 North Coordinate (feet): 169684.76
 East Coordinate (feet): 382067.9
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	434	1846	sand	
0.42	453	935	sand to silty sand	
0.67	441	872	sand	
0.89	451	839	sand to silty sand	
1.03	430	747	sand to silty sand	
1.13	438	712	sand to silty sand	
1.26	430	698	sand to silty sand	
1.36	449	691	sand to silty sand	
1.50	462	935	silty sand to sandy silt	
1.65	443	619	silty sand to sandy silt	
1.89	426	561	silty sand to sandy silt	
2.14	445	705	silty sand to sandy silt	
2.39	441	844	sandy silt to silty clay	
2.64	476	1036	sandy silt to silty clay	
2.88	466	944	sand to silty sand	
3.14	455	893	sand	
3.63	428	532	sand	
3.96	434	566	sand	
4.07	434	638	sand	
4.32	422	647	sand to silty sand	
4.57	438	501	sand to clayey sand	
4.75	434	501	sand to clayey sand	
4.87	451	555	silty sand to sandy silt	
5.11	447	587	silty sand to sandy silt	
5.36	428	517	silty sand to sandy silt	
5.61	443	445	sand to silty sand	
5.86	441	460	sand to silty sand	
6.10	436	511	gravelly sand to sand	
6.35	460	571	sand	
6.60	434	608	very stiff fine grained	
6.84	438	492	sand	
7.34	438	612	sandy silt to silty clay	
7.59	460	654	silty sand to sandy silt	
7.83	438	782	sand to silty sand	
8.08	466	870	sand	
8.24	443	701	sand to silty sand	
8.49	430	707	silty sand to sandy silt	
8.73	438	543	silty sand to sandy silt	

SCAPS LIF and G ot chnical Data (Tank Farm 5)

Push Id: TK5708.CSV
 Date Started: Saturday, August 26, 1995
 Time Started: 4:49 PM
 North Coordinate (feet): 169684.76
 East Coordinate (feet): 382067.9
 Elevation (feet): 0
 Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
8.98	445	668	sand	
9.23	441	661	very stiff fine grained	
9.48	445	589	very stiff fine grained	
9.73	447	612	silty sand to sandy silt	
9.98	449	740	silty sand to sandy silt	
10.23	455	731	silty sand to sandy silt	
10.73	443	705	silty sand to sandy silt	
10.97	441	540	silty sand to sandy silt	
11.21	443	879	silty sand to sandy silt	
11.45	432	598	silty sand to sandy silt	
11.61	438	580	silty sand to sandy silt	
11.86	443	541	silty sand to sandy silt	
12.35	445	485	sand to silty sand	
12.60	438	578	silty sand to sandy silt	
12.85	432	515	silty sand to sandy silt	
13.10	457	569	silty sand to sandy silt	
13.35	445	735	silty sand to sandy silt	
13.60	447	545	sand to silty sand	
14.10	443	708	silty sand to sandy silt	
14.35	424	615	silty sand to sandy silt	
14.60	445	492	silty sand to sandy silt	
14.85	436	438	silty sand to sandy silt	
14.95	426	445	silty sand to sandy silt	
15.20	426	335	sandy silt to silty clay	
15.69	434	436	sand to silty sand	
15.94	443	492	clayey silt to silty clay	
16.19	457	622	sandy silt to silty clay	
16.43	451	810	silty sand to sandy silt	
16.68	434	622	silty sand to sandy silt	
16.93	438	478	silty sand to sandy silt	
17.44	430	517	silty sand to sandy silt	
17.68	447	599	sandy silt to silty clay	
17.93	445	682	silty sand to sandy silt	
18.11	438	631	sand to silty sand	

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id: TK5709.CSV

North Coordinate (feet): 169738.22

Date Started: Saturday, August 26, 1995

East Coordinate (feet): 382088.04

Time Started: 5:27 PM

Elevation (feet): 0

Fluorescent Threshold (counts): 1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.17	432	1543	sand	
0.41	445	964	sand	
0.67	443	699	sand	
0.92	428	763	sand	
1.17	428	721	silty sand to sandy silt	
1.41	424	712	sand to silty sand	
1.66	449	713	sand to silty sand	
1.91	436	448	sandy silt to silty clay	
2.10	434	603	clayey silt to silty clay	
2.36	434	763	sandy silt to silty clay	
2.61	453	818	silty sand to sandy silt	
2.87	447	730	sand to silty sand	
3.12	449	684	sand	
3.37	466	813	sand to silty sand	
3.62	453	656	sand to silty sand	
3.87	422	620	sand to silty sand	
4.12	434	526	sand	
4.37	438	594	sand	
4.62	432	575	sand	
4.87	445	540	silty sand to sandy silt	
5.02	432	599	sandy silt to silty clay	
5.27	451	542	silty sand to sandy silt	
5.52	432	612	silty sand to sandy silt	
5.78	430	579	sand to silty sand	
6.02	445	620	silty sand to sandy silt	
6.27	428	522	silty sand to sandy silt	
6.53	453	515	silty sand to sandy silt	
6.79	428	542	silty sand to sandy silt	
7.05	443	579	silty sand to sandy silt	
7.55	445	640	silty sand to sandy silt	
7.80	428	546	sand to silty sand	
8.05	445	540	sand to silty sand	
8.29	447	608	sandy silt to silty clay	
8.54	466	539	silty sand to sandy silt	
8.78	436	522	sand to silty sand	
9.03	424	485	silty sand to sandy silt	
9.28	438	491	silty sand to sandy silt	
9.53	438	478	silty sand to sandy silt	

SCAPS LIF and G otechnical Data (Tank Farm 5)

Push Id:	TK5709.CSV	North Coordinate (feet):	169738.22
Date Started:	Saturday, August 26, 1995	East Coordinate (feet):	382088.04
Time Started:	5:27 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
9.78	438	483	silty sand to sandy silt sand	
10.03	438	467		

SCAPS LIF and Geotechnical Data (Tank Farm 5)

Push Id:	TK5710.CSV	North Coordinate (feet):	169761.83
Date Started:	Saturday, August 26, 1995	East Co rdinate (feet):	382102.98
Time Started:	6:01 PM	Elevation (feet):	0
		Fluorescent Threshold (counts):	1272

Depth (feet)	Peak Wavelength (nm)	Normalized Intensity	Soil Classification based on CPT data	Interpretation
0.16	430	442	silty sand to sandy silt	
0.36	460	757	silty sand to sandy silt	
0.49	468	885	silty sand to sandy silt	
0.67	470	838	silty sand to sandy silt	
1.08	434	799	sandy silt to silty clay	
1.26	438	759	sand	
1.42	438	679	sand	
1.59	438	685	sand to silty sand	
1.84	438	733	sand to silty sand	
2.09	455	753	sand	
2.84	428	640	sand to clayey sand	
3.34	441	625	sand to silty sand	
3.58	436	576	sand to silty sand	
3.84	445	665	silty sand to sandy silt	
3.97	436	611	sandy silt to silty clay	
4.13	438	588	very stiff fine grained	
4.37	449	642	clayey silt to silty clay	
4.62	445	780	sandy silt to silty clay	
4.84	445	685	sand to silty sand	
5.09	460	627	sand to silty sand	
5.34	434	694	silty sand to sandy silt	
5.53	453	745	silty sand to sandy silt	
5.78	424	566	sandy silt to silty clay	
6.03	432	547	silty sand to sandy silt	
6.27	443	580	silty sand to sandy silt	
6.52	457	555	silty sand to sandy silt	
6.77	447	518	silty sand to sandy silt	
7.21	434	607	silty sand to sandy silt	
7.46	428	570	silty sand to sandy silt	
7.66	434	576	silty sand to sandy silt	
7.90	453	285	silty sand to sandy silt	
8.15	428	483	sand to silty sand	